

The MILLING WORLD

and CHRONICLE OF THE GRAIN and FLOUR TRADE.

PUBLISHED EVERY THURSDAY MORNING.

VOL. X.—No 18.

Buffalo, N. Y., August 28, 1884.

\$1.50 Per Year.
Single Copies, 3 Cts.

BREAD MAKING.

I.

IN a series of papers written for *Knowledge* by the celebrated English chemist, Prof. W. Mattieu Williams, under the comprehensive title of "Chemistry of Cookery," he treats the "bread making" as follows:

Let us first note the effect of cooking on gluten. The action of hot water is to effect a partial solution, that is, it effects a loosening of the bonds of solidity, but not going so far as to render it completely fluid. It appears to be a sort of hydration, similar to that which is effected by hot water on starch, but less decided. To illustrate this wash the gluten from the flour with the aid of cold water in one sample; then boil some flour as in making ordinary bill sticker's paste, and wash this also in cold water. The gluten will come out with difficulty, and when separated will be softer and less tenacious than that obtained from the raw specimen. This difference remains until some of the water it contains is driven out. The importance of this in the cookery of grain food is very great, as anyone who aspires to the honor of becoming a martyr to science, may prove by simply making a meal on raw wheat, masticating the grains until reduced to small pills of gluten, and then swallowing these. Mild indigestion or acute spasms will follow, according to the quantity taken and the digestive energy of the experimenter. Raw flour will act similarly but less decidedly.

Bread-making is the most important, as well as a typical example of the cookery of grain food. The grinding of the grain is the first process of such cookery; it vastly increases the area exposed to the subsequent actions. The next stage is that of surrounding each grain of the flour with a thin film of water. This is done in making the dough by careful admixture of a modicum of water and kneading, in order to squeeze the water well between all the particles. The effect of insufficiently enveloping in water is sometimes seen in a loaf containing a white powdery kernel of unmixed flour. If nothing more than this were done, and such simple dough were baked, the starch granules would be duly broken up and hydrated, the gluten also hydrated, but, at the same time, the particles of flour would be so cemented together, as to form a mass so hard and tough when baked, that no ordinary human teeth could crush it. Among all our modern triumphs of applied science, none can be named that is more refined and elegant than the old device by which this difficulty is overcome in the every-day business of making bread. Who invented it? Its discovery was certainly very far anterior to any knowledge of the chemical principles involved in its application.

The problem has a very different aspect. Here are millions of particles, each of which has to be moistened on its surface, but each when thus moistened becomes remarkably adhesive, and therefore sticks fast to all its surrounding neighbors. We require, without suppressing this adhesiveness, to interpose a barrier that shall sunder these millions of particles from each other so delicately, as neither to separate them completely, nor allow them to completely adhere. It is evident that in the operation that supplies each particle with a partial atmosphere of gaseous matter, the difficult

and delicate problem will be effectually solved. This is done in making bread.

The seed which is broken up into flour contains diastase as well as starch, and this diastase, when aided by moisture and moderate warmth, converts the starch into dextrin and sugar. This action commences when the dough is made, and this alone would only increase the adhesiveness of the mass, if it went no further; but the sugar thus produced may, by the aid of a suitable ferment, be converted into alcohol. As the composition of alcohol corresponds to that of sugar, minus carbonic acid, the evolution of carbonic acid gas is an essential part of this conversion.

With these facts before us, their practical application in bread-making is easily understood. To the water with which the flour is to be moistened some yeast is added, and the yeast-cells, which are very much smaller than the grains of flour, are diffused throughout the water. The flour is moistened with this liquid, which only demands a temperature of 72 deg. F. to act with considerable energy on every granule of flour that it touches. Instead then, of the passive, lumpy, tenacious dough produced by moistening the flour with mere water, a lively "sponge," as the baker calls it, is produced which "rises," or grows in bulk by the evolution and interposition of millions of invisibly small bubbles of gas. This sponge is mixed with more flour and water, and kneaded again to effect a complete and equal diffusion of the gas bubbles, and finally the porous mass of dough is placed in an oven previously raised to a temperature of about 450 deg.

The baker's old-fashioned method of testing the temperature of his oven is instructive. He throws flour on the floor. If it blackens without taking fire, the heat is considered sufficient. It might be supposed that this is too high a temperature, as the object is to cook the flour, not to burn it. But we must remember that the flour which has been prepared for baking is mixed with water, and the evaporation of this water will materially lower the temperature of the dough itself. Besides this, we must bear in mind that another object is to be attained. A hard shell or crust has to be formed, which will so incase and support the lump of dough as to prevent it from subsiding when the further evolution of carbonic acid gas shall cease, which will be the case some time before the cooking of the mass is completed. It will happen when the temperature reaches that point at which the yeast cells can no longer germinate, which temperature is considerably below the boiling point of water. In spite of the high outside temperature, that of the inner part of the loaf is kept down to a little above 212 degrees by the evaporation of the water contained in the bread; the escape of this vapor and the expansion of the carbonic acid bubbles by heat increasing the porosity of the loaf. The outside being heated considerably above the temperature of the inner part, this variation produces the differences between the crust and the crumb. The action of the high temperature directly converts some of the starch into dextrin, and a part of the latter again into caramel. Thus we have in the crust an excess of dextrin as compared with the crumb, and the addition of a variable quantity of caramel. In lightly

baked bread, with a crust of uniform pale yellowish color, the conversion of the dextrin into caramel has barely commenced, and the gummy character of the dextrin coating is well displayed. Some such bread appears as if it had been varnished, and the crust is partially soluble in water. This explains the apparent paradox that hard crust, or dry toast, is more easily digested than the soft crumb of the bread, the cooking of the crumb not having been carried beyond the mere hydration of the gluten and the starch, and such degree of dextrin formation as was due to the action of the diastase of the grain during the preliminary period of "rising."

Everybody has, of course, heard of "aerated bread," and most have tasted it. Several methods have been devised, some patented, for effecting an evolution of gas in the dough without having recourse to the fermentation above described. In spite of the great amount of ingenuity expended upon the manufacture of such unfermented bread, and the efforts to bring it into use, but little progress has been made. The general verdict appears to be that unfermented bread is not so "sweet," that it lacks some element of flavor, is "chippy" or tasteless, as compared with the good old-fashioned wheaten bread, free from alum or other adulterations. My theory of this difference is that it is due to the absence of those changes which take place while the sponge or dough is rising, when the diastase of the grain is operating, as in germination, to produce a certain quantity of dextrin and sugar, and possibly acting also on the gluten. Deficiency of dextrin is, I think, the chief cause of the chippy character of aerated bread. It must be remembered that this stage is protracted over several hours, during which the temperature most favorable to germination is steadily maintained.

THE GRAIN AND FLOUR IMPORTS OF FRANCE.

The following figures published by the Paris syndicate illustrate the import and export of flour and grain since 1875, and show a steady decline of the exports while the imports have increased.

| | Import. | Export. |
|-----------|-------------------|-----------|
| | in meter centner. | |
| 1875..... | 28,698 | 2,144,710 |
| 1876..... | 40,607 | 1,907,426 |
| 1877..... | 63,418 | 1,686,603 |
| 1878..... | 74,457 | 968,084 |
| 1879..... | 119,352 | 191,092 |
| 1880..... | 290,392 | 151,588 |
| 1881..... | 286,698 | 166,941 |
| 1882..... | 326,656 | 97,412 |
| 1883..... | 480,690 | 122,820 |

Austria-Hungary shipped the largest quantity of flour into France; in 1881, 80,287 mtc.; in 1882, 140,122 mtc.; and in 1883, 209,204 mtc. The other countries imported as follows:

| | 10,219 | 14,899 | 25,425 |
|----------------------|--------|--------|--------|
| Germany..... | 64,731 | 83,736 | 98,093 |
| Belgium..... | 35,046 | 52,345 | 54,289 |
| Italy..... | 3,167 | 4,765 | 9,013 |
| Switzerland..... | 29,999 | 19,800 | 20,951 |
| United States..... | 9,323 | 4,621 | 6,943 |
| Algeria..... | 1,740 | 5,368 | 6,972 |
| Other Countries..... | | | |

Thus we see that the importation has not only increased from Austria, but also from Belgium, Italy, Germany and Switzerland. To justify the agitated increase of the French flour tariff from 1 fr. 20 cts. to 3 fr. 75 cts. and on wheat, rye and oats from 60 cts. to 1 fr. 25 cts., we are told that the majority of those countries which send grain and flour

into France are guarded against importation by tariffs just as high or even higher. The tariff in Italy on grain is 1.40, on flour 2.77; in Germany 1.25 and 3.75; in Austria 1.25 and 3.75; in Greece 1.41 and 3.51; in Spain 4.20 and 6; in Portugal 5.60 and 8.96; in Turkey 8 per cent. ad valorem. These figures, the syndicate concludes with apparent justice, demonstrate that every country is for free trade or protection according to the interests at stake. We see, for instance, that countries, more industrial than agricultural, like England and Belgium, or those devoted to stock breeding, as Denmark, Switzerland, Holland, Norway and Sweden, allow the importation of grain and flour either free of duty or under a very moderate tariff; but agricultural countries who produce enough for home consumption or more, sever their connection with other countries by imposing tariffs. France, the syndicate states, is an agricultural country par excellence, and intends to protect its interests by a high tariff in the same manner as is done by other agricultural countries. The French government has, however, so far, rejected the proposed high tariff on breadstuffs.

COMPOSITION AND NUTRITIVE VALUE OF THE DIFFERENT PARTS OF WHEAT.

II.

To determine the leading question about the digestibility of the bran, I have made direct quantitative experiments upon myself. My health was at that time excellent, and by a careful selection of fluid or easily digestible food, I done everything to prevent any possible failure. Then I ingested well washed and dried, whole bran, weighing 5.693 grams and during the succeeding five days the evacuations were carefully sifted and washed, and I recovered from them 5.191 grams of unchanged whole bran.

The digested portion of this stuff, therefore did not exceed 6 or 7 per cent. and if we consider the 0.73 per cent. of mineral substances which, according to analysis, the bran lost during its passage through the digestive tract and add to these the similar substances which it lost before the experiment began, we must conclude that the quantity of digestible bran particles, the sum total of all nitrogenous and mineral substances digested, is barely four thousandths part of the weight of the wheat kernel. A very small advantage indeed, especially in the light of knowledge that it was purchased at the cost of transforming white into dark flour; and it is perfectly safe to advocate the separation of the bran from the flour to be used for bread making.

The germ, on an average only 1.43 per cent. of the kernel, is not as important a factor in the determination of the food value, as the bran was supposed to be. The composition of the germ marks it as a peculiar product, as seen from the following figures:

| INSOLUBLE SUBSTANCES. | |
|-----------------------------|-------|
| Fats..... | 12.50 |
| Nitrogenous substances..... | 19.32 |
| Cellulose..... | 9.61 |
| Mineral..... | 0.80 |
| SOLUBLE SUBSTANCES. | |
| Nitrogenous substances..... | 19.50 |
| Non-nitrogenous..... | 22.22 |
| Mineral substances..... | 4.50 |
| Water..... | 11.55 |
| 100.00 | |

The large quantity of nitrogenous substances, 42.5 per cent., and fats, 12.5 per

cent., in combination with the fact that the material to which flour owes its peculiar odor, resides in the germ, would make it very advisable to incorporate it among the useful nutritive substances, if it did not contain a quantity of oil among its soluble matter which has the property of becoming rancid in a very short time, aside from the disastase and cerealine which tend to produce a dark bread. The germ must therefore be separated from the flour as well as the bran.

As far as the starch kernel is concerned, it is digestible in every part, and must therefore be retained in full in the flour.

To summarize the above statements we find that the retention of the bran and germ of the wheat kernel adds but little to the nutritive qualities of the flour, while its presence is capable of causing serious damages. Millers should therefore by all known means try to separate as carefully as possible these parts of the grain from the final product, the flour.

PROTECTION OF MILLS FROM FIRE.

Mr. Appleton, at the recent Council Meeting of the National Association of British and Irish millers, read the following paper which has much of interest to millers in this country.

The protection of our mill property from fire is a question that becomes year by year one of greater importance. Although we are rapidly improving our machinery to enable the British miller to hold his own against his foreign competitor, yet, instead of our mill fires being reduced, unfortunately they go on increasing, both in number and extent. The question will naturally be asked, Is the modern type of machinery more dangerous than the old? And to this I say, no, as in none of the recent fires has the origin been traced to either dismembrator with rollers combined, or the entire roller or gradual reduction system; whereas in many former ones there was no doubt that they originated either in the millstones running empty and firing the surrounding woodwork, or in sparks being conveyed by the exhaust to the stove-room, thereby causing an explosion. My experience in roller reduction milling is only four years, against forty by millstones, but I have no hesitation in saying that I consider the former much safer from fire than the latter.

It may be argued that with a rapidly increasing population there is a larger quantity of flour manufactured year by year, requiring more power and machinery, and that the increase in the number of fires may only be one of proportion; but I very much question if during the last ten years our manufacture has increased in the same ratio as the population, but rather the reverse, and it has been by importation that the increased demand has been met. During that period we have imported about forty million sacks of flour, and on the other hand, the losses by fire have been gradually increasing from £42,700 in 1876, to £150,000 in 1883. Insurance companies doing a large business with flour mills, have unfortunately, had either to liquidate or be wound up, and other large and influential offices, owing to their losses in this class of risk, refuse to insure on any terms. It is therefore evident that very soon the English miller will have the alternative of either being his own insurer, or of paying an excessive and almost prohibitory premium. The state of things is most unfortunate at a crisis like the present, when every nerve has to be strained to reduce the cost of manufacture on the one hand, and to produce the highest quality, on the other, to check the influx of foreign flour.

A deputation from this Association some time ago waited upon the Tariff Insurance Companies, and, during the interview, the

question was asked by a member of the deputation, "why flour mills could not be treated on the same principle as marine insurances, each mill to be regularly inspected and insured on its merits?" to which the chairman replied, "that the insurance companies would not take upon themselves this responsibility," thus showing that millers must protect their interests themselves, and not delegate it to others. A few of the companies have for some time been making allowances off the tariff rates for appliances, and this is undoubtedly a step in the right direction; but experience shows that in many cases the supposed security is but a false one, as without continued watchfulness the arrangements get out of order, and when the time of need comes the water buckets are dry or full of paste, the hose bursts, the hydrant will not open as expected, and instead of having a volume of water at command, all is confusion and disappointment, and the mill that might easily have been saved had the appliances been in good working order, only too often becomes a wreck. I merely make these remarks in passing, as the subject will be treated further on.

In the fires that are continually taking place, there is one fact that calls for special attention, and that is the large percentage for which no cause can be assigned, viz., 70 to 80 per cent. The stereotyped account is: "The mill was left quite safe, all the bearings were cool, and no smell of fire on the foreman going round the last thing." Yet in a few hours the mill is in a flame, and all efforts to extinguish the fire are unavailing.

How these fires occur can only be surmised, yet a conjecture may come very near the truth. Naked lights are commonly in use in the shape of candles, oil lamps, etc., which are perhaps hastily extinguished, and particles of fire scattered or blown amongst the dust, unnoticed at the time, gradually though slowly grow into a ball of fire and eventually break into a blaze; or bearings have been left hot, the lubricating matter becomes ignited, and ultimately fire breaks out. There is yet another probable cause, which I mention with some hesitation, and that is that in some cases it may be the work of evil-disposed persons, who, nursing a real or imaginary grievance, take this mode of reparation for their supposed injury. My late painful experience suggests the idea that if human life is held of little account in gratifying a feeling of revenge, it can scarcely be expected that property will be regarded as more sacred.

Statistics prove what an immense proportion of fires take place when the mill has ceased working and is left unprotected, and this is one of the weak points that I shall treat of in the remedial scheme I have to lay before you.

Enough has now been said for every one to admit that some radical change is absolutely necessary; and as the insurance companies remain passive in the matter, and simply go on advancing the rates, it is the millers themselves who must take the initiative and grapple with this great question, that becomes year by year more serious, involving as it does a heavy tax on their industry. My proposal is to form a Millers' Fire Protection Association in connection with the National, leaving it optional with the members of the latter whether they join it or no. When a sufficient number signify their intention to join, a committee can then be formed and the rules for its guidance arranged. I would recommend (subject to the approval of the committee) that an inspector be engaged, also a chief inspector.

The first duty of the inspector would be to thoroughly examine all mills joining the Association, advise with the owner as to all weak points subject to fire in the construction of the building or the surroundings, and point out the best means of removing all

causes of danger. He would also recommend the adoption of all the best and recognized appliances for putting his mill into as complete a state of defence as possible. He would afterwards visit the mills periodically, closely inspect every part of the buildings, testings the appliances and the efficiency of the fire brigade, and report the result of his examination to the head office in London. He would submit all important questions, such as structural alterations and protective arrangements, to the head inspector, whose sanction would be required before anything could be done. His duty would also be to visit the scene of every corn mill fire that takes place in England, enquire into the causes of it, and report fully to the head office, for the benefit and guidance of the Association.

This officer would devote his whole time to the business of the Protection Association, and be paid an annual salary, the amount to be determined by the committee. The head inspector need not necessarily be on the staff or in the regular employment of the Association, but should be a thorough, practical engineer, in whose opinion both the millers and the insurance companies would have full confidence, and whose services would be remunerated according to a fixed scale of charges for each duty performed, and would be paid by the miller through the head office. His duties would be to consult with the general inspector and the mill owner, when required, on all important matters connected with the alteration of any mill adopting protective arrangements. To inspect such mills after the arrangements are completed, and give a full report to the head office in Mark Lane, with his recommendation under what class they shall stand. He would also, at stated intervals, visit and re-class the mills, raising or lowering the standard according to their merits, the result of such revision to be entered in the books with the reasons given for any change that might be made. These books to be open to all insurance companies when either effecting or renewing an insurance policy. The committee should be furnished with full information as to the best recognized appliances for the prevention of fire, and should be prepared to offer practical suggestions in all cases brought before them by the members of the Association. I will now venture to lay before you what I consider to be some of the best means of preventing fires in mills, with the outline of a scheme which the committee could fill up and extend as they might think fit. First as to appliances. There should be water buckets in most convenient places, on an improved stand, filled and ready for immediate use, with paper of some light description pasted over the top, preserving the water fresh and free from dust, and which could be torn off at a moment's warning; also extinc-tors and hand pumps. Water mains on each floor, with hose so arranged as to be at once attached without entanglement; these mains to be supplied if possible, from two sources, say one from the waterworks, and the other from an independent steam pump or large water tank, so that in the event of one supply failing, another is available.

If a mill is divided into compartments I would advise this arrangement in each compartment. No naked fixed lights to be allowed, but all to be protected by glass; all hand lamps or candles to be enclosed in a case. Smoking to be strictly prohibited; anyone convicted a second time to be instantly dismissed. A well-organized fire brigade amongst the employes, available for night or day, and regularly drilled once a week by an efficient captain, is, I consider, indispensable. In a large mill two watchmen should be employed, one by night and the other by day, to visit every part of the building continually, and to keep all the ap-

pliances in working order, with a tell-tale clock to register their movements. In a small mill subject to exemption in this respect to be determined by the committee; but no mill, large or small, ought to be left unprotected when not at work. This is a point to be strongly insisted upon, for the reasons alluded to in a former part of this paper. The electric bell arrangement is a most valuable one, giving warning by a recognized code or signal to all parts of the mill and engine room, and summoning all the available staff to the point of fire immediately. This electric bell ought also to extend to the office, and the dwelling of the foreman or mill manager. There is another method of extinguishing fire, viz., by having perforated pipes round each room connected with the boiler, into which, on a given signal, the engineer can turn a volume of steam, which fills the room, and would be of great advantage in checking the fire. Then we have introduced to our notice by our American friends, the Grinnell automatic fire extinguisher or sprinkler, which although not yet well known in this country, is extensively used and highly spoken of on the other side of the water.

Members on joining the Protection Society would, in the first instance, have the mill visited by the inspectors, and after receiving his report and suggestions, should be prepared to carry them out as far as practicable. On the completion of such alterations as may be made, the chief inspector would thoroughly examine the work done, and send in his report to the head office, saying under what letter the mill should be classed—B, C, or D. Mills with a first-class fire arrangement, and a thoroughly efficient fire brigade, would be placed under letter B for the first year, and if all is well maintained and the arrangements exceptionally good, they would then have the distinction of being promoted to letter A; but any mill would be liable to have the standard raised or lowered according to their state of efficiency, or the reverse. In receiving these visits of inspection, the members must be prepared to make a little sacrifice in time and labor, so as to afford every facility to the officers in the performance of their duty. A charge would be made for each visit on a scale to be fixed by the committee, with traveling expenses and all communications and appointments would be made through the London office. The committee to meet (till the company is in thorough working order) at least once a month, either in London or a central town; afterwards (if found to be sufficient) once in two or three months.

As to ways and means, any one joining the Association must be prepared to assist in forming it on a sound and solid basis, and may rest assured that any expense he may be put to at the outset, will soon be more than repaid, not only in the security of his property, but by decreasing his insurance premiums; for I have every reason to believe that the insurance companies will be keenly alive to the advantages of this Association, and will be disposed to considerably lower their rates to the members of it, after it has been in operation a sufficient length of time to test its merits. The question of how the funds shall be raised, together with other minor details, I would leave for the committee to deal with, as my intention in writing this paper is merely to give ideas which may be elaborated and worked out as you may think fit, and which I sincerely trust may result in the establishment of such an organization as shall materially reduce the number of our mill fires, and be of lasting benefit to the community generally.

OUR WHEAT TRADE.

About two months ago, says the *Globe-Democrat*, a slight thrill went through the

grain trade of this country at the announcement that the Imperial Government of Great Britain contemplated an expenditure of about \$150,000,000 in building and fitting out railroads and rolling stock in India, but as nothing more was heard of the scheme for some time, it was considered merely a wild rumor, such as is often passed around, without either color of truth or reason for its origin. Now, however, the report is partially confirmed and begins to assume an aspect of reality far from consoling to those of our population who put their trust in grain. There may be still nothing of truth in it, but the bare possibility that there is will set not a few of our grain men seriously to considering what, under the circumstances, is the outlook.

The population of India is vastly greater than that of the United States, but this point of itself would have no weight in the matter, the real trouble being found in the immense disparity in wages and cost of subsistence in the two countries. The laborers of India are paid but a few cents a day, but the crops of India are so abundant, so great in proportion to the actual needs of the people, that the amount of wheat India is capable of producing is practically past computation. Heretofore, the lack of transportation has not only prevented a large percentage of the Indian crops from reaching a foreign market, but has even been, indirectly at least, the cause of famines in certain districts where the crop had failed, while surrounding tracts, though abundantly willing, so far as supplies went, to furnish relief, could not do so from the impossibility of transporting it to the points where it was needed.

If this transportation question in the interior of India is settled by the construction of railroads, England will see to it that no additional difficulty arises in the matter of ocean transportation, and the teeming fields of India will become an important factor in the world's markets. Cheap wheat will be the rule, and the problem that our farmers will have to face is, how, with costly labor, high-priced land, high rates of interest and expensive machinery, they are to compete with the products of a country where labor is practically valueless, where land is abundant, cheap and productive, where interest is low and machinery unknown. It cannot be denied that the question is one of grave importance, and that, unless properly appreciated in all its bearings and measures taken to meet it when it really arises for settlement, it may result in great financial injury to ourselves and also in the possible loss of the enviable position we now enjoy in the grain trade.

It is fortunate for the farmers of the North and Northwest that England has several colonies that are under exactly the same circumstances as themselves. The grain export of Canada, while not very great at present, is bound to be large in the near future, and the general conditions of Canada and of our Northwestern States are so similar that, for all practical purposes, their interests may be considered identical. Then, in addition to Canada, there is Australia, which is rapidly becoming a grain-raising country, destined to compete in the grain trade, and the general surroundings of the grain-raising districts of Australia also fortunately resemble those of parts of the United States to a marked degree. Thus England will find favoring India to be a rather perilous business when done at the expense of Canada and Australia, and the louder the remonstrances from these colonies the less the danger to which we shall be exposed.

But this will be but a side relief. The way in which we shall be compelled to meet the difficulty will be by cheapening both our production and our transportation. The employment of machinery has so greatly reduced the cost of production that

the labor of one man, properly aided by machinery, is made as effective as the labor of ten men without it. The cost of our aggregate of grain export will therefore, by extending the use of labor-saving devices, be greatly lessened, and the ratio will be still further diminished by increase in the quantity produced. The extension of the railroad systems and the more extensive employment of the river and lake routes will materially reduce the cost of transportation, and thus we shall be able to hold our own even against India. The problem hinges, of course, upon the cheapness of the product, and as the ratio of cost to amount of production has steadily diminished for a long period, there is no reason why, for a considerable time in the future at least, it should not continue to do so. At all events, many years must elapse before the projected system of Indian railroads can be completed, and perhaps it is, after all, a good policy to wait till the mountain is reached before an attempt is made to climb it.

SMOKE AND ITS PREVENTION.

When coal is placed on a furnace fire, writes a correspondent of the *Boston Journal of Commerce*, a species of distillation takes place, the results being the formation of hydro-carbon gases, some oil, steam, and other products of combustion. This process of distillation goes on so rapidly that minute particles of solid carbon are detached from the lumps of coal and joined with the gases evolved, pass over the fire bed and escape up the chimney unconsumed. Unless the supply of oxygen over the fire bed is sufficient to properly combine with these gases and consume the carbon, smoke is formed, becoming visible over the fire bed and particularly noticeable at the chimney top. This smoke consists of the innumerable small particles of carbon, also some soot evolved from the oil distilled, and both mixed with steam and gases, holding them in suspension, as it were, and enabling them to be floated through the air, until the steam condenses and allows the carbon and sooty particles to be deposited.

Assuming smoke to be the result of incomplete combustion, the question of what causes it will naturally lead to lengthy discussions of smoke, chemically considered, the space for which would exceed the limit of a newspaper article. Therefore it may be briefly stated that in the combustion of coals in an ordinary boiler furnace, a large amount of gaseous material is given out which, under certain conditions, is inflammable, but which is in a great measure lost for heating purposes, as it passes out of the chimney unconsumed. These gases, combining with the vapor and carbon in the coal, constitute the disagreeable feature of smoke, so inconvenient to those living near manufacturing establishments. The proportion of heat-potential material thus wasted, may be estimated at from 40 per cent upward, in many cases as high as 75 per cent. These gases require the mixture of a large amount of oxygen to combine with them in order to enable them to be consumed, and this oxygen can only be supplied by the introduction of atmospheric air. The quantity required, however, is so large that it cannot with advantage be introduced either through the ash-pit and grates, or by opening the doors. By introducing air through the ash-pit it is deprived of its oxygen while passing through the fuel, thus producing carbonic oxide gas, which, under ordinary conditions, passes away unconsumed, being useless for combustion purposes on account of the absence of oxygen. In admitting air in quantities through the doors, the temperature is so much less than that of the fire that the latter is cooled down, the gases rise upward against the bottom of the boiler, forming, as it were, a cushion, and keeping much heat

from it. The oxygen, however, combines with the carbon given off, and smoke is to a certain extent prevented, but at the expense of much heat.

Hence the importance of using hot air in supplying oxygen over the fire bed has been demonstrated. This is successfully accomplished by heating the air to a high degree in iron reservoirs located in the bridge wall of combustion chamber of the furnace, and using small steam jets in vacuum boxes to draw it from these reservoirs, and throw it forcibly over the fire from the front, thus improving a naturally poor draft and doing away with the use of a blower where required. This method will result in an economy in fuel, from the fact that by the use of hot air the oxygen contained therein combines quickly with the gases and carbon, insuring their speedy combustion and producing an intense heat under the boilers, thus raising steam very quickly.



A PROFITABLE LITTLE INVESTMENT.

One of the most satisfactory, useful and profitable little investments a mill owner can make is in the Bowsheer Speed or Motion Indicator, with or without alarm. To any responsible party on 30 days' trial.

Give size and speed of shaft you wish to connect to. Address,

N. P. BOWSHER,
South Bend, Ind.

Or any leading Mill Furnisher.

BOLTING CLOTH.

Do not order your cloth until you have conferred with us. It will pay you, both in point of quality and price. We are prepared with special facilities for this work. Write us before you order.

CASE MANUFACTURING CO.,
Columbus, Ohio.

Office and Factory, 5th Street, north of Naughten.

BUCKWHEAT FLOUR

Always commands a better price, and gives better satisfaction to the consumer when made by the aid of Craisons' Silver Creek Roller Buckwheat Shucker. This is a fact which we can demonstrate to any miller who will write us.

G. S. CRANSON & SON,
Silver Creek, N. Y.

FOR SALE!!

Nine full set of the celebrated Stevens rolls, made by the John T. Noye Mfg. Co., Buffalo, N. Y. Six of them were sent to the Commercial Mills, Detroit, Mich., in December last, but were taken from there without having been put in operation, or having been touched by fire, and our rolls substituted. They were made from the present patterns of the John T. Noye Mfg. Co., and have their late so-called Holt belt drive (or words to that effect). We will furnish smooth rolls with these machines, or any kind of corrugations, to parties who may object to the Stevens corrugations. Three set we have recently taken from the celebrated Elkhorn Mills, of H. D. Rush & Co., Leavenworth, Kan., where our rolls are being placed. All of these rolls were made at Ansonia, Conn., and are of the same make as those used by the John T. Noye Mfg. Co. We offer these rolls at half list price. Please write for particulars. Respectfully,

NORDYKE & MARION CO.,
Indianapolis, Ind.

SITUATIONS WANTED.

Advertisements under this head, 25 cents each insertion for 25 words, and 1 1/4 cents for each additional word. Cash with order. Three consecutive insertions will be given for the price of two.

SITUATION WANTED.

By a miller who understands the "Roller System." Good references. Address, LOCK BOX 84, Niagara Falls, N. Y. 1880

SITUATION WANTED

By a young man having experience with stone and rolls as first or second miller. Best recommendations. Address stating kind and capacity of mill, BOX 247, Vassar, Mich. 14

SITUATION WANTED.

In a custom grist or flouring mill by a man who has had about two and one-half years' experience as a miller, and can furnish best of references. Address, T. H. NICHOLAS, Forestville, Chautauqua County, N. Y. 8tf

WANTED.

A situation in a mill, by a man with a small family, who has been running burr mills for a number of years. Address, WM. H. WOLLERTON, McElhattan P. O., Clinton county, Pa. 1618

SPECIAL ADVERTISEMENTS.

Advertisements of Mills for Sale or Rent, Partners Wanted, Machines for Sale or Exchange, etc., etc., cost 1 1/4 cents per word for one insertion, or 4 cents per word for four insertions. No order taken for less than 50 cents for one insertion, or \$1 for four insertions. Cash must accompany the order. When replies are ordered sent care of this office, 10 cents must be added to pay postage.

FLOUR MILL FOR SALE CHEAP.

On easy terms of payment; favorably located, within 50 miles of this city, good opening. Address, P. O. Box 2418, St. Paul, Minn. 1623

FOR SALE OR RENT.

A three-run tide-water mill, all in good order; good machinery. A bargain for a man with a small capital. Water all the year. C. E. STUDWELL, Bay Port, Conn. 1881

WANTED TO RENT.

A custom mill. Must be in good order, with trade established. New York or Pennsylvania preferred. Address, with full description, I. W. POST, Phelps, Ontario county, N. Y. 1821

WANTED.

A practical mill man for a partner, or will sell a first-class merchant mill, with cotton gin attached. Finest location in America. Address, JOHN ESTES, Abilene, Taylor county, Texas. 1831

WANTED.

Wanted immediately, a competent miller to take charge of a custom mill. Steady work and fair wages to the right kind of man. Address, with terms and references, F. B. MAYHAM, Hobart, N. Y. 1816

A BARGAIN.

One 16-inch under-runner, full iron frame, middlings mill, made by C. C. Phillips, Philadelphia. It is brand new, has never been used, and will be sold at a big bargain as I have now no use for it. Address C. 91, care THE MILLING WORLD, Buffalo, N. Y. 14

YOU CAN BUY THESE CHEAP.

Three McCully Corn Cob Crushers. The above articles are brand new, in perfect condition, just as they left the factories, and will be sold very cheap for cash. Address S. 80, care THE MILLING WORLD, Buffalo, N. Y. 14

FOR SALE.

A 50-barrel water power flour mill, situated in best wheat growing section in Ohio, on P. F. W. & C. R. R. Machinery almost new. Good town and good local trade. Twenty-five acres land, two dwellings, stables, plenty fruit, etc. For further information address O. M., in care of THE MILLING WORLD. 1481

FOR SALE CHEAP.

One 6-horse power engine and 10-horse power boiler, all complete, price, \$350; one 8-horse power engine and 10-horse power boiler, price, \$375; one 10-horse power portable complete, price, \$350; one 10-horse power Russell Tractor, price, \$500; one 4-horse power vertical engine, price, \$120. Call or address for particulars, EZRA F. LANDIS, Lancaster, Pa. 282

FOR SALE.

A four-run New Process water power flouring mill, and 160 acres of very choice land; 40 acres of young timber. Situated in Colfax county, Neb. Mill in good repair. A never-failing water power. All facilities for making first class flour. A good chance to do a first-class paying business. Owners desire to go into other business. This property will be sold at half its cost. Address, J. A. GRIMSON, Schuyler, Colfax county, Neb. 17tf

A GENUINE BARGAIN.

I offer for sale my 8-run, water-power mill, together with between eight and ten acres of land, four houses and a saw mill, (the latter not in operation.) The property is in a village of 1,800 inhabitants, in a fine and rich agricultural section. Everything is in good repair except the saw mill. Flour mill is located within 30 rods of railroad station, and my retail trade ranges between 80 and 80 car-loads per year. I offer the entire property for \$10,000. Excellent reasons for desiring to sell. Address, if you mean business, "MILLER," care THE MILLING WORLD, Buffalo, N. Y. 1821



PUBLISHED EVERY THURSDAY BY
THE AMERICAN INDUSTRY PRESS,
 (LIMITED.)

OFFICES, LEWIS BLOCK, SWAN STREET,
 BUFFALO, N. Y.

G. B. DOUGLAS, - - Managing Editor.
 THOS. McFAUL, - - General Agent.

SUBSCRIPTION.

In the United States and Canada, postage prepaid, \$1.50 Per Year, in advance; can be remitted by Postal order, registered letter, or New York Exchange. If currency is enclosed in unregistered letter, it must be at sender's risk.

To all Foreign Countries embraced in the General Postal Union, \$2.25 Per Year, in advance.

Subscribers can have the mailing address of their paper changed as often as they desire. Send both old and new addresses. Those who fail to receive their papers promptly will please notify at once.

ADVERTISING.

Card of Rates sent promptly on application. Orders for new advertisements should reach this office on Tuesday morning, to insure insertion in the week's issue. Changes for current advertisements should be sent so as to reach this office Saturdays.

EDITOR'S ANNOUNCEMENT.

Correspondence is invited from millers and millwrights on any subject pertaining to any branch of milling or the grain and flour trade.

Correspondents must give their full name and address, not necessarily for publication, but as a guarantee of good faith.

This paper has no connection with any manufacturing or mill furnishing business. Its editorial opinions cannot and will not be influenced by a bestowal or refusal of patronage. It has nothing for sale, but its space to advertisers and itself to subscribers.

Entered at the Post Office, at Buffalo, N. Y., as mail matter of second-class.

MILLERS' ASSOCIATIONS.

| | | |
|-------------------|-------------------------|-----------------|
| NATIONAL..... | S. H. Seamans, Sec'y. | Milwaukee, Wis. |
| CALIFORNIA..... | F. J. Parsons, Sec'y. | Oakland. |
| ILLINOIS..... | C. H. Seybt, Sec'y. | Highland. |
| INDIANA..... | Jos. F. Gent, Pres't. | Columbus. |
| IOWA..... | J. S. Lord, Sec'y. | Ogden. |
| KANSAS..... | O. W. Baldwin, Sec'y. | Ottawa. |
| KENTUCKY..... | W. H. Wherritt, Sec'y. | Lancaster. |
| MARYLAND..... | J. Olney Norris, Sec'y. | Baltimore. |
| MICHIGAN..... | W. Hibbard, Sec'y. | Grand Rapids. |
| MINNESOTA..... | Frank Pettit, Sec'y. | Minneapolis. |
| MISSOURI..... | David B. Kirk, Sec'y. | St. Louis. |
| NEBRASKA..... | C. D. Smith, Sec'y. | Lincoln. |
| WISCONSIN..... | S. H. Seamans, Sec'y. | Milwaukee. |
| TEXAS..... | Mitch. Gray, Sec'y. | Dallas. |
| PENNSYLVANIA..... | Landis Levan, Sec'y. | Lancaster. |
| OHIO..... | Robt. Colton, Sec'y. | Bellefontaine. |
| NEW YORK..... | J. A. Hinds, Sec'y. | Rochester. |

GOOD TIMES COMING.

IF there is in this country a "bull" on the immediate financial and commercial future it is the Chicago *Tribune*. In one of its recent issues it said:

At a recent meeting of the Board of Directors of one of the richest and most conservative banks of this city the President said to his associates: "Take out your memorandum-books and put me on record as making now and here the prediction that this country is on the eve of the most prosperous days it has seen since 1854."

It would have been a good idea to have specified the bank and the name of the sanguine president. It would also be gratifying to know whether this rich and conservative bank is discounting with any greater freedom than was the rule a month or so ago. The *Tribune* continues.

There is, it must be confessed, a great deal in the development of events that promises to make the prophecy good. The most important of these is the crops, the next is the crops, and the next to that is the crops. From Indiana to California and from Dakota to Texas, the bounty of Nature has been poured on the ground with golden generosity. Hundreds of millions of dollars have been spread over the surface of the farms of the Mississippi Valley and the Pacific coast. This treasure has but to be picked up from the agricultural placers, our real gold-diggings; a great deal of it has been already picked up and put out of harm's way, and the weather is the best possible for the garnering of the rest in magnificent shape. With such a mintage of wealth out of propitious skies and kindly earth it matters but little to the people of this country whether the swapping of jack-knives in Wall street turns to the advantage of this side or that. The one supreme fact is that the country has made a profit of hundreds of millions of dollars out of its investment of a year's toil in the fields. That in wheat and other things is already secured. Three weeks more of weather without frost will give us hundreds of millions additional out of the corn crop, which never looked so well as now.

This is a very pretty, but scarcely convincing, way of putting it. The honest granger is just now looking at it with differently colored goggles, and it is puzzling him to pick up this treasure. The *Tribune* closes as follows:

On the fringes of the frontier there are farmers who will have to sell because they are in debt or must have the money to tide them over to another year; but after they have sold there is going to be such a withholding of

grain from the markets, if prices stay down where they are, as has not been witnessed for many a year. The miserable Hindoo has the nerve and the staying power to hold his little jarfuls of grain if he cannot get a fair price. Much more can the American cultivator protect himself by refusing to sell the sweat of his brow to Wall street speculators at their price. No matter if the first effects of this stoppage are unfavorable on trade and the railroads, the stuff is in the country and will all have to be moved sometime or another.

The last sentence might be taken as qualifying all that precedes it, but we think it was not so intended.

THE MILLING WORLD would be very glad to coincide with the opinions given currency by the great Chicago daily, but it is quite unable to do so. We are in no sense disposed to be despondent as to the future, but we fail to discern any causes which will lead to an early resumption of activity in our manufacturing industries, and until these industries are stimulated, we do not see how prosperity is to resume its sway. We have harvested an exceptionally large and fine crop of wheat, but just now, it is not in demand at prices which render its production remunerative to the grower. Despite the increased yield of wheat over last year, it is very doubtful if the farmer will realize as much money from it as he then did. Reduce his income and his purchasing power will be curtailed; reduce his purchasing power, and those who sell to him will realize a curtailment in their business, and this will follow back to the original producer of the articles sold to the farmer.

We are beginning to realize that, while we can produce wheat in excess of our ability to consume, we cannot, arbitrarily, place a value upon it; this value depends, and will with each succeeding year depend, more largely upon the requirements of foreign countries. If we have a supply in excess of our ability to distribute, then concessions in values must be made else we must keep our wheat.

The *Tribune* believes wheat prices have now touched bottom; we believe they have nearly done so. It says it would occasion no surprise to have a material advance set in; we think it would create the biggest kind of a surprise if such an advance should be maintained. We confidently anticipate an advance in wheat values, but not immediately; we think wheat at ruling prices is good property to invest in, if one can carry it for several months, but for a considerable time wheat will be freely offered by the farmer, and so long as this is the case values will not materially appreciate.

THE MILLING WORLD does not believe in looking on the dark side, neither does it believe in giving utterance to rosy-tinted prophecies in the absence of tangible basis therefor. We are firm believers in the recuperative powers of this country, but as for a few years past we have overdone everything attempted, it is necessary that a breathing spell be indulged in.

CANADA MILLERS OBJECT.

The war cry of "Protection" which sounds loud and louder through Europe at present, finds an echo on this side of the Atlantic. The most recent official action on the subject was taken at the last meeting of the Board of Trade, and is embodied in the following resolution:

"That this Board, satisfied that the milling industry of this country labors under a most unnecessary and unfair disadvantage whenever the wheat crop of Canada is less than the consumptive requirements of the country; and being satisfied further that this disadvantage is due to the tariff discriminating in favor of the American manufacturer of flour, by imposing a duty of 50 cents per barrel on American flour, whereas the duty on American wheats is 15 cents per bushel, and equal to 71 cents per barrel, thereby making it impossible for the Canadian miller to compete with his American rival; be it resolved that as the principle of the Canadian tariff is avowedly to protect the Canadian manufacturer, and as it most markedly fails in this particular, the Board do memorialize the Government to rectify the injustice, by at least equalizing the duties on American wheat and flour, so that the American miller will not have an absolutely protected advantage from the operation of the Canadian tariff."

The adoption of this resolution was looked upon as an act of justice to Canadian industry, as during the past six months 342,000 barrels of flour, valued at \$1,420,750, had been imported into Canada, while mills were standing without work in Ontario, and neither millers nor farmers were benefitted by the present tariff. The president of the Board, commenting upon the resolution said that

"The present state of affairs show how much better it would be if the government would refrain from unnecessarily interfering with the commerce of the country, and they had in this case an example of the difficulties the government got into when it undertook to protect all the industries of the country. They were pretty sure, in their efforts, to tread on the toes of some industry, and more or less, to injure all the interests, and he thought the government was beginning to realize that. There were some members of the Board who did not believe in a protective policy at all, and if the millers had asked such to support the abolition of the duties on both wheat and flour, they might have got their hearty co-operation. If the farmers were not benefitted by the present tariff, they could be convinced that the duty on wheat was an injury instead of a benefit to them, they could not do better than to try to secure them as allies, and the government would doubtless give prompt heed to their united representations on the subject. The prosperity of the millers, however, had a very special interest for the Board, and he thought they had made out a good case for relief in some direction, if it could be done consistently with all the interests involved, and he had no doubt the Board would cheerfully give them all the aid in their power to this end."

The unnecessary interference of the government with the commerce of the country, has at various times been denounced by THE MILLING WORLD, and we quote the above comments as an illustration that the idea of commerce and industry regulating themselves without any special government aid, is gaining ground.

A NOTEWORTHY FACT.

The following observations are made, not as argument for, or against, protective tariff, but, simply for the purpose of eliciting, from those who may feel interested, an expression of impressions or opinions. It will, perhaps, be well to premise these remarks with the statement that we hold very decided opinions upon the subject of free trade vs. protective tariff, but in all likelihood our readers hold equally as decided opinions, and may be just as tenacious in their possession, so what we have to say will be simply a statement of facts with possibly a few queries, such as a superficial consideration of the facts presented would very naturally provoke. The London *Miller* of date, August 4, contains advertisements of the following American milling machinery, viz:

Geo. T. Smith Middlings Purifier and Centrifugal Reel.
 Case Mfg. Co., Middlings Purifier.
 Howes & Ewell's Eureka Grain Cleaning Machinery, Silver Creek Flour Packer, and Eureka Magnetic Separator.
 Wolf & Hamaker's Middlings Purifier.
 Aug. Heine's, Silver Creek Centrifugal and Excelsior Bran Duster.
 Priax Dust Catcher.
 Gray's Roller Mills and System.
 Richmond Separators.
 Victor Turbine Wheel.
 Stevens Roller Mills.
 Hunter's Centrifugal Reels and Purifiers.
 Garden City Reduction Machines, Wheat Brush, Purifier and Break Machine and Brush Scalper.
 Leffel's Turbine Water Wheel.
 Jones' Little Giant Water Wheel.

We might follow the line of American machinery, on sale in London and other cities of England, Scotland and Ireland, employed in other lines of industrial pursuit, but, for present purposes, it is unnecessary. We infer from the amount of space taken up in our contemporary, to advertise this American milling machinery, that returns therefrom yield a satisfactory margin of profit; in other words, the demand for American machinery evidences that it is, at least in some measure, preferred to English or Continental machinery designed for similar uses. The great bulk, probably all, of this machinery is manufactured in this country, and shipped abroad in practically completed form. Much of it, we know is, and therefore the transportation

charges are computed by the cubic foot of space occupied.

Advocates of a high protective tariff urge its maintenance because, they allege, it enables our manufacturers to employ labor and pay it remunerative wages; they will tell you that we cannot compete with the pauper labor of Europe, unless the wages of our mechanics is reduced to a similar level. Now it is not our purpose to contradict these assertions, but we would like to have some one tell us how it is that we can manufacture machinery here, paying high prices for labor and material, ship it in a costly manner to England, and sell it at a profit in direct competition with the product of this "pauper labor" which some of our blatant politicians so greatly fear. Will our esteemed Cincinnati contemporary bend its giant intellect to a solution of this, to us, mystery? We have a harder conundrum in reserve.

THE President of the United States has appointed the commission to carry out the scientific tests to be made in connection with the Electrical Exhibition at Philadelphia. The commission consists of the leading physicists of America, men whose reputation is known beyond the boundaries of the United States, and whose conclusions will be accepted everywhere unquestioned. As a fine illustration of the high appreciation, by the average American, of purely scientific attainments, the law which authorizes the appointment of the commission, provides especially that "none of the members of this commission shall receive any compensation for their services." It may be an interesting question to determine whether any other class of men, professional or otherwise, would be willing to undertake as experts, the arduous task of conducting and reporting on a large series of the most careful and elaborate experiments and investigations for the benefit of the public without compensation. If the commission which is to test the steam engines at the same exhibition will be of an equally high standard as the above mentioned scientific commission, then the question and discussion of the relative efficiency of the different engines may finally be settled on an authoritative scientific basis.

MR. F. KARSCH of Berlin reports the discovery of a new insect which infests the flour and was found in the store rooms of the steam mill of Messrs. Breuer & Hofstadt in Neuss-on-the-Rhine. Contrary to the accepted statements that most of the noxious insects are imported into America from Europe, this little moth is supposed to have travelled in the opposite direction in American wheat which is largely used on the Rhine. Although known and described by American entomologists, it has never been placed among the injurious insects on this side of the water, and it remains to be seen what it will do when acclimatized in Germany.

PENNSYLVANIA millers still keep up the interest in the State Association, as the following notice indicates:

PENNSYLVANIA MILLERS' STATE ASSOCIATION,
 SECRETARY'S OFFICE,
 LANCASTER, PA., August 18, 1884.

The regular annual convention of the Pennsylvania Millers' State Association will be held at Philadelphia, Oct. 7. Assembly Hall, southwest corner Tenth and Chestnut streets has been secured for the occasion, where the meeting will open at 8 o'clock P. M. Evening session at 7.30 o'clock when a lecture will be delivered by J. D. Nolan of New York. Subject "The Milling of To-day". Headquarters will be at Plummer's New American Hotel, on Chestnut street, opposite Independence Hall, where special rates have been secured.
 LANDIS LEVAN, Sec'y.

THAT valuable article, the elective franchise, will have wide field for exercise this fall. The man must be difficult to please who cannot find a candidate to vote for.

ESTABLISHED 1856.

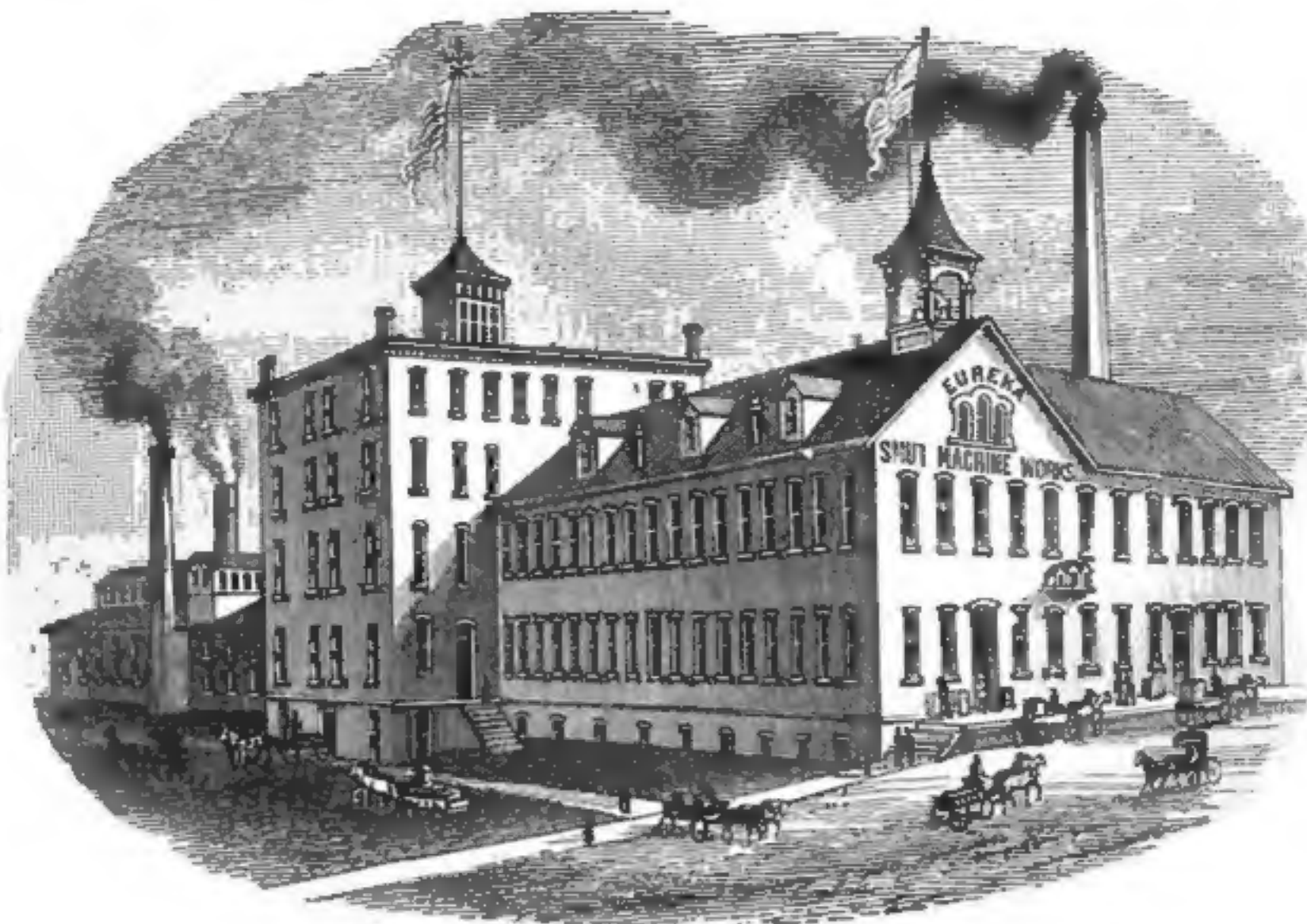
EUREKA GRAIN CLEANING MACHINERY | GENUINE DUFOUR BOLTING CLOTH**OVER 18,000 MACHINES IN USE.****OUR LINE COMPRISES**

The Eureka Separator,
The Eureka Smutter and Separator,
Eureka Brush Finisher,
The Eureka Magnetic Automatic Separator,
Silver Creek Flour Packer.

Our establishment is the oldest, the largest and most perfectly equipped of its class in the world, and our machinery is known and used in every country where wheat is made into flour.

HOWES & EWELL,
SILVER CREEK, N. Y.

European Warehouse and Office: 16 Mark Lane, London, E. C. Gen. Agency for Australian Colonies and New Zealand. Thos. Tyson, Melbourne, Victoria.



We handle this justly celebrated cloth in large quantities, and can fill all orders upon receipt. For such as may prefer a cheaper grade, we offer our

ANCHOR BRAND BOLTING CLOTH.

Guaranteeing it to be equal in every particular to any other cloth on the market, except the Dufour. We have handled it for years, have sold thousands of yards of it, and know it will fully sustain our representations.

Send For Samples of Cloth, Our Style of Making Up, and Prices.

HOWES & EWELL,
SILVER CREEK, N. Y.

ODELL ROLLER MILLS

ARE MADE ONLY BY
STILWELL & BIERCE MFG. CO., DAYTON, O.

CAREY'S DOUBLE ANCHOR BOLTING CLOTH

Best in the Market. Every Yard Guaranteed Always up to Standard Count.



REGISTERED TRADE MARK.

SOLID COTTON BELTING. MILL PICKS.**FINE FRENCH BURR & ESOPUS MILLSTONES**

BELTING.
PORTABLE MILLS.
SMUT MACHINES.

ELEVATOR BUCKETS,

BRUSH MACHINES, AND
MILL FURNISHINGS GENERALLY.
Send for Catalogue and Price List.

SAMUEL CAREY, 17 Broadway, NEW YORK.

TRIMMER'S

Improved Adjustable
GRAIN RUBBING, POLISHING
—AND—
SEPARATING MACHINE
COMBINED.

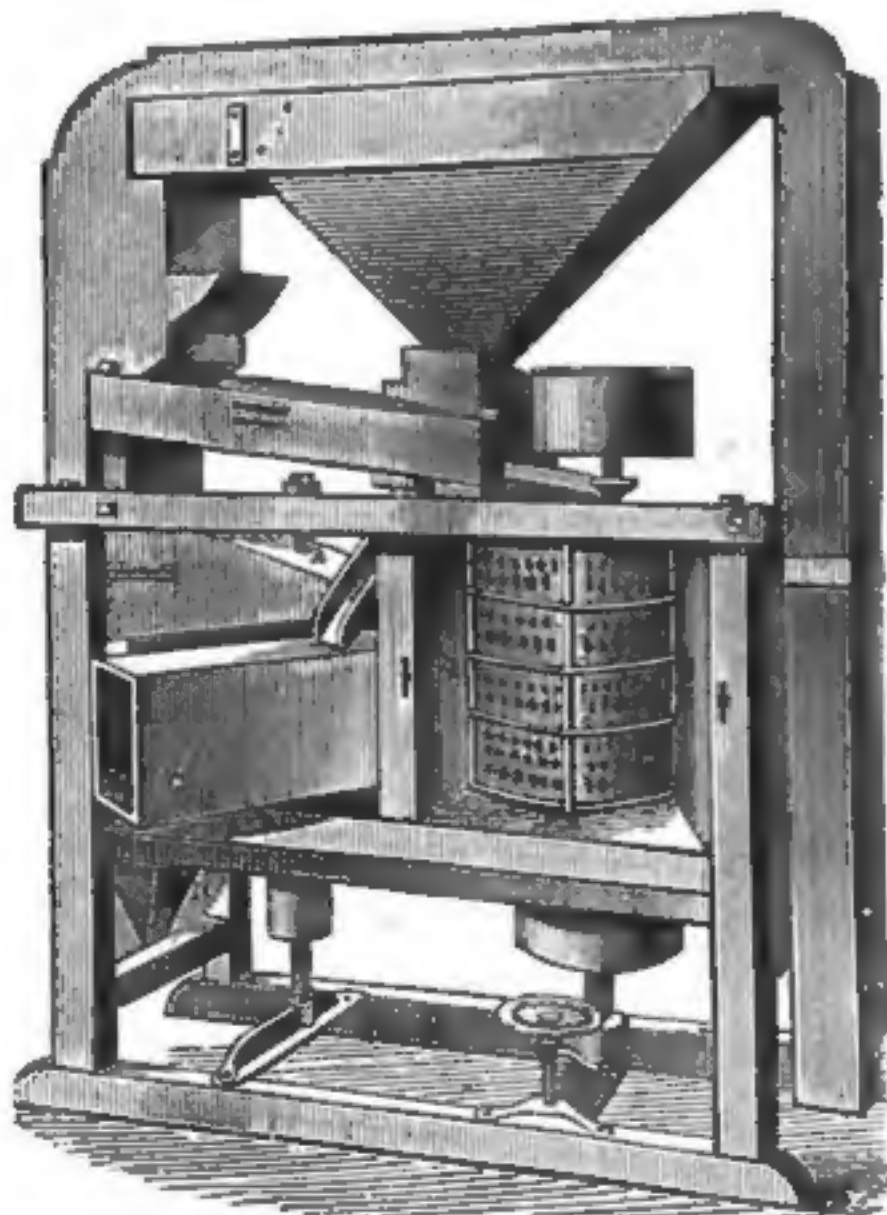
It will clean, rub and separate wheat, and take out the rat balls, black steek seeds, joints of straws, cockle and other impurities. It will also rub off more fuzzy ends and dust from the creases of the berries, by rubbing the wheat together as it passes up between the rubbers, so each berry must get rubbed, scoured, and polished alike. It will do all of this work better and last longer than any other machine of the kind. All this we guarantee. It will also clean barley and rye.

SEND FOR DESCRIPTION & PRICE LIST.

Kreider, Campbell & Co.

MILLWRIGHTS & MACHINISTS,

1030 Germantown Avenue, Philadelphia, Penn.

**THE LIGHTNING CORUNDUM TOOL**

Patent Applied For.



The only Tool made with Grooved Corundum. The grooves make it the best cutting and polishing tool ever used on a Millstone. The handle can be attached on either side of Corundum. Warranted to give satisfaction or money refunded. Price, \$3.50 by express. Address,

N. F. SHUNK, BUCYRUS, OHIO.

THE BRADFORD MILL CO.

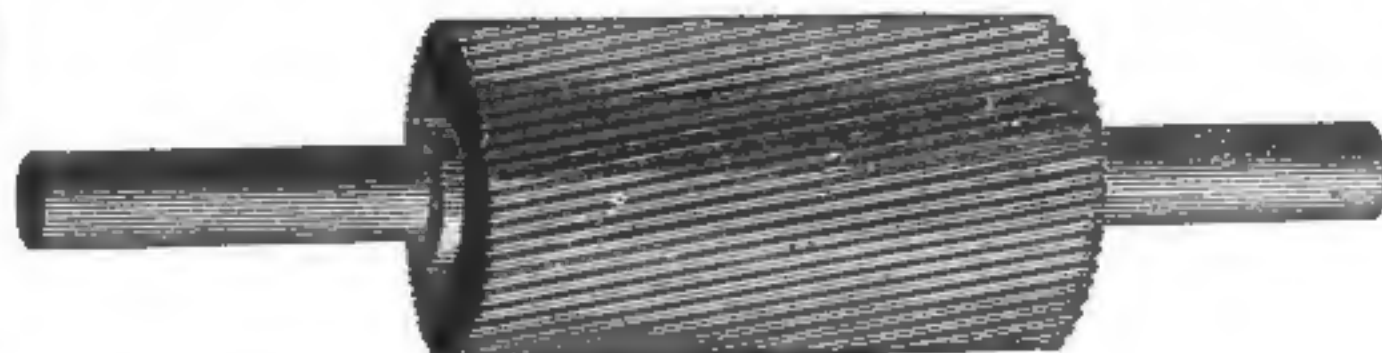
Manufacture a Complete Line of

FLOUR MILL MACHINERY,

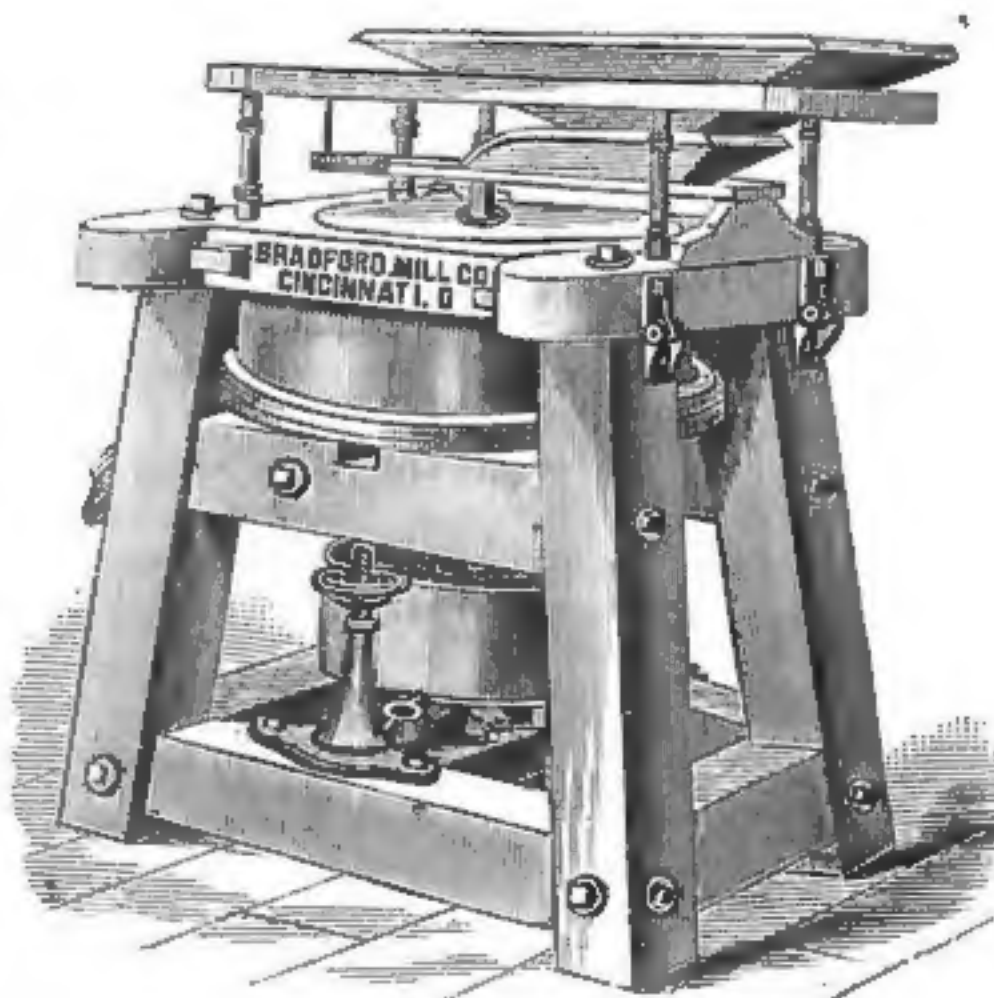
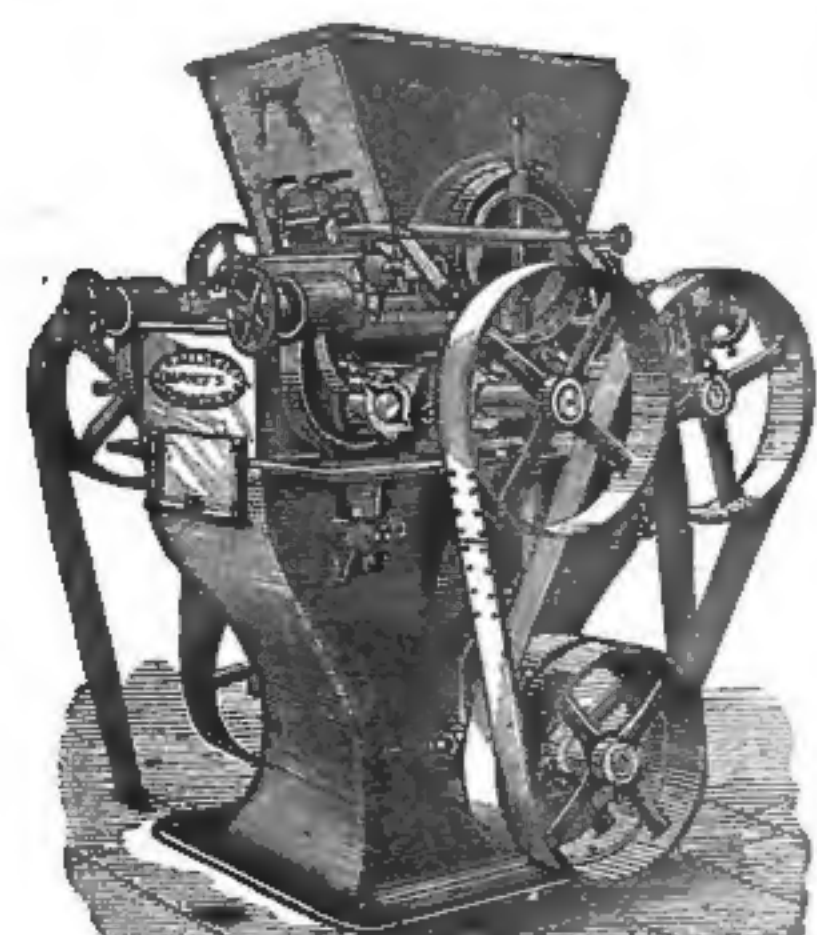
Including Portable Corn and Middlings Mills.

RE-GROUNDING AND RE-CORRUGATING

PORCELAIN
ROLLS
RE-GROUND.



CHILLED IRON
ROLLS
Re-Ground and
Re-Corrugated.



EIGHTH AND EVANS STREETS, - CINCINNATI, OHIO.



ROLLER GRINDING-MILL.

Patent No. 303,369, dated Aug. 12, 1884, to William Dickson Gray, of Milwaukee, Wis. This invention relates to that class of grinding-mills employed for reducing grain and grain products which consists of two co-operating rolls arranged parallel with each other in such manner as to reduce the material which is passed between them. The aim of the present invention is to produce a mill which shall be better adapted than those at present known in the art for the reduction of soft winter-wheat; and to this end the invention consists, essentially, in the combination of a roll having a surface provided with coarse longitudinal flutes or corrugations, with a second roll having a cylindrical surface provided with fine lines or scratches, so called thereon. Grinding-rolls have been used provided with teeth and with serrations of various forms; rolls having scratched surfaces have been combined one with another, and many combinations of rolls having different surfaces have been employed for carrying out different steps in the reduction of grain products; but in practice this inventor finds that the peculiar combination which constitutes the subject of the present invention is especially adapted for the purpose for which it is designed, and that it gives, when used upon soft winter-wheat—results which are not otherwise attainable. In constructing this mill the rolls are preferably made of chilled iron or other metal presenting a hard surface, the corrugations having preferably a circumferential width of about half an inch each, with the forward or active surface rising at an easy angle toward the rear. The rolls may be mounted in a frame with adjusting devices and with driving and feed mechanisms in any suitable manner, these details being familiar to all persons skilled in the art, and constituting no part of the present invention. The construction represented in any of the numerous patents heretofore granted to this inventor, he says for roller grinding-mills would answer an excellent purpose in this connection. Referring to the accompanying drawings, Fig. 1 represents a top plan view of a pair of rolls constructed and combined in accordance with the present invention. Fig. 2 represents a cross-section of the same on the line *x x*. The roll A is constructed with a ribbed or corrugated surface, each rib having a length circumferentially of half an inch, more or less, with an easy inclination from its forward to its rear edge, where it drops inward suddenly or abruptly to meet the forward edge of the next rib. The form of these ribs and their width or size may be modified to a limited extent; the essential requirement being that they shall be wide upon the surface, and that their forward surfaces shall not rise so abruptly as to act with a cutting action. The roll B is constructed, in the first instance, with a perfectly smooth cylindrical surface, which is subsequently finished by providing the same with numerous fine lines or scratches, as represented in the drawings, the object being to slightly roughen the surface of the roll without forming thereon clearly-defined teeth or ribs. The surface of this roll will present to the eye the appearance of being practically smooth; but the sense of touch will develop a certain sharpness or roughness of the surface which is found in practice sufficient to retain or retard the material thereon while being subjected to the action of the roll A. In making use of the machine the driving

mechanism will be arranged in such manner as to impart to the ribbed roll A a surface speed considerably greater than that of the roll B. In the drawings is shown the two rolls connected by gear-wheels to insure a differential surface speed; but, as before stated, the driving mechanism may be of any approved construction.

MEANS FOR CLEANING SIEVES OR BOLTING-CLOTH.

Letters Patent No. 303,407, dated August 12, 1884, to Clayton S. Wenger, of West Earl, Pa. This invention relates to improvements in the means for cleaning sieves or bolting-cloths—such as are used in flour-bolting machines, middlings-purifiers, and the like—in which light chains attached to a movable bar act in connection with the sieve; and the object is to thoroughly clean the sieve without jarring it or pounding against it. Figure 1 is a top view of a sieve with the device attached, the mechanism actuating the same being removed above the line *yy* of Fig. 2. Fig. 2 is a section through the sieve on the line *x x*, and shows a front view of the manner in which power is applied to the reciprocating rod; and Fig. 3 is

Fig. 1

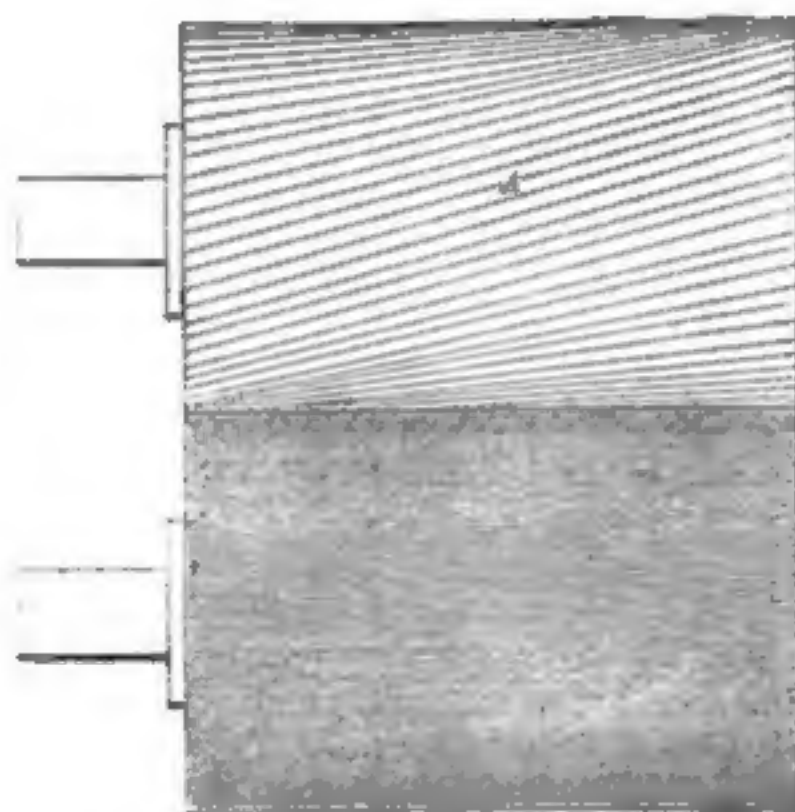
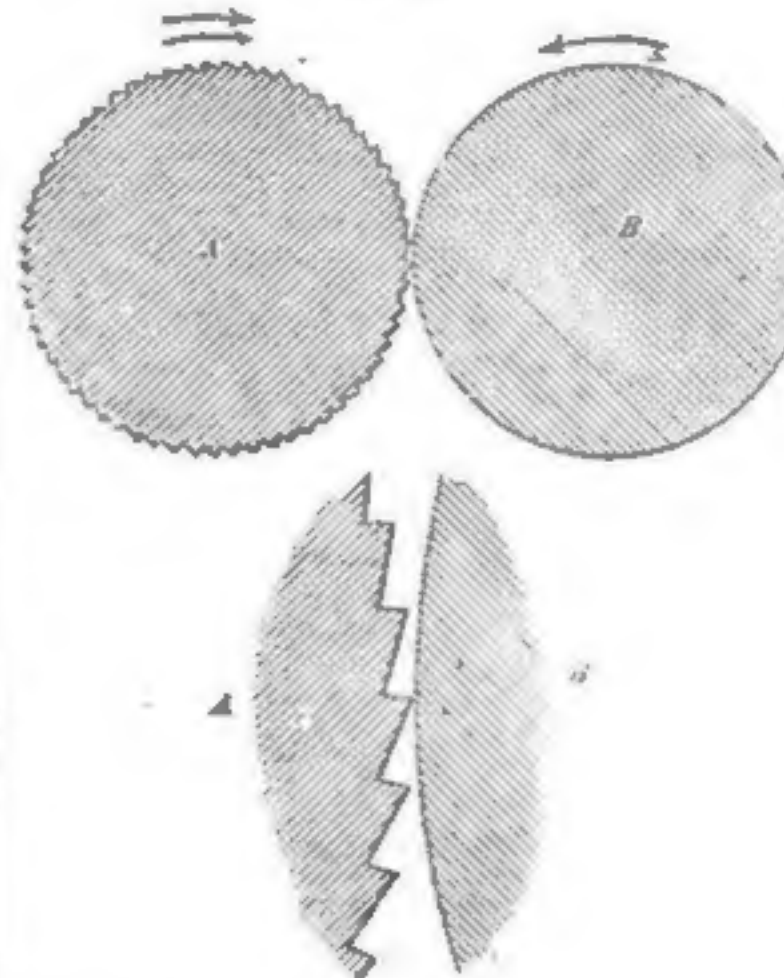


Fig. 2



PATENT NO. 303,369. ROLLER GRINDING MILL.

Fig. 1

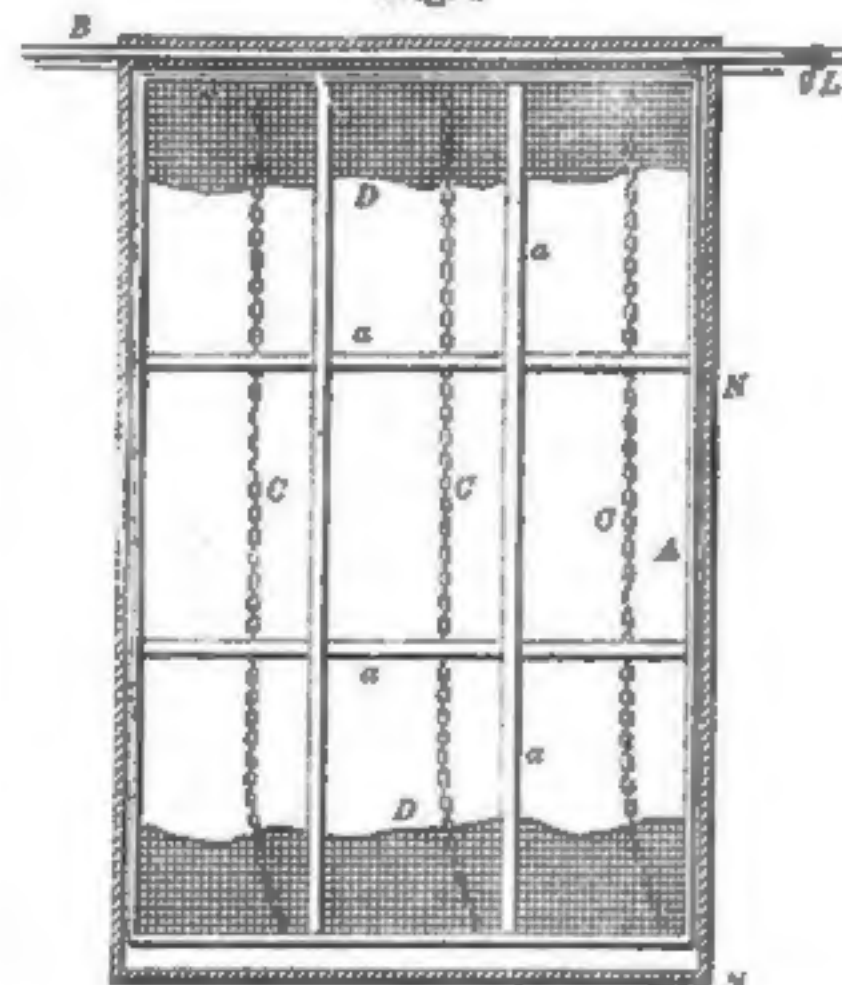
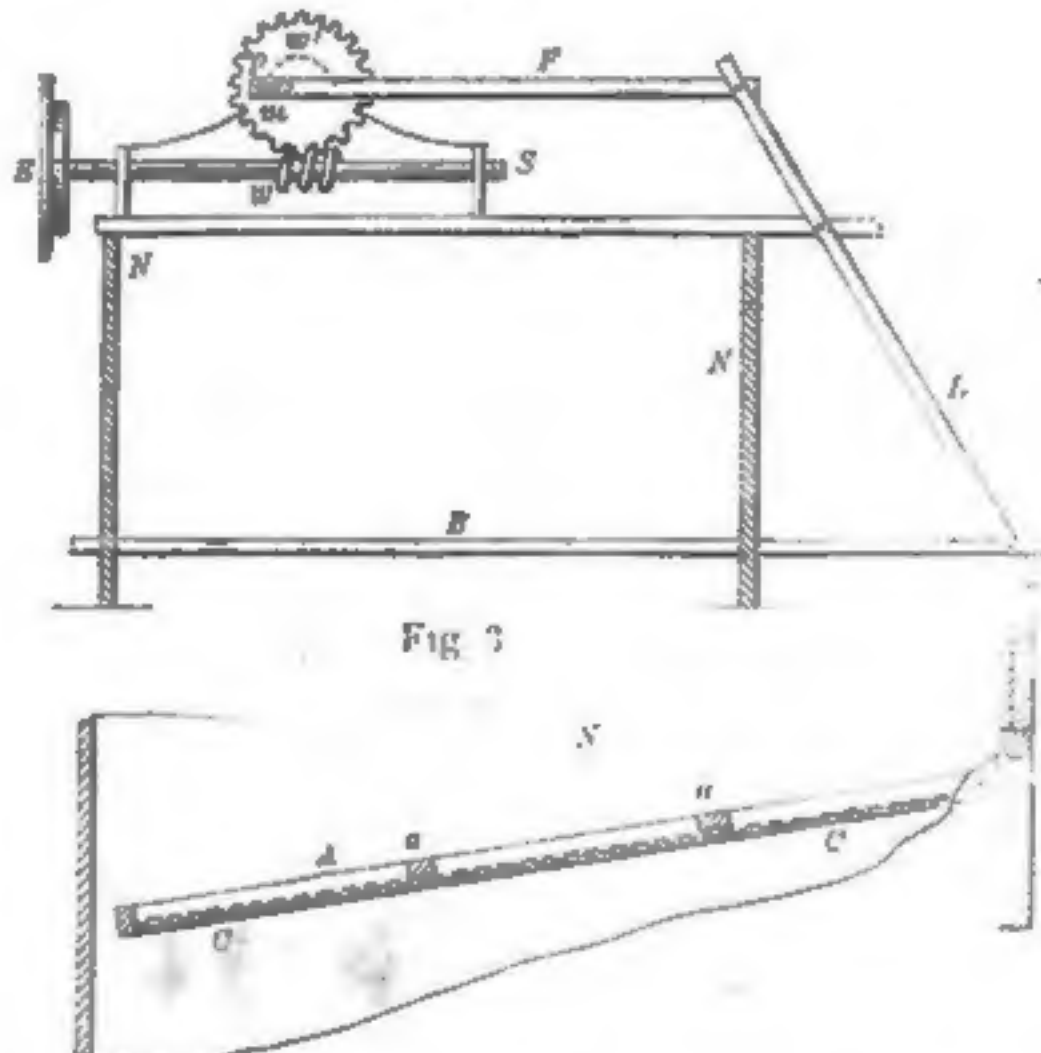


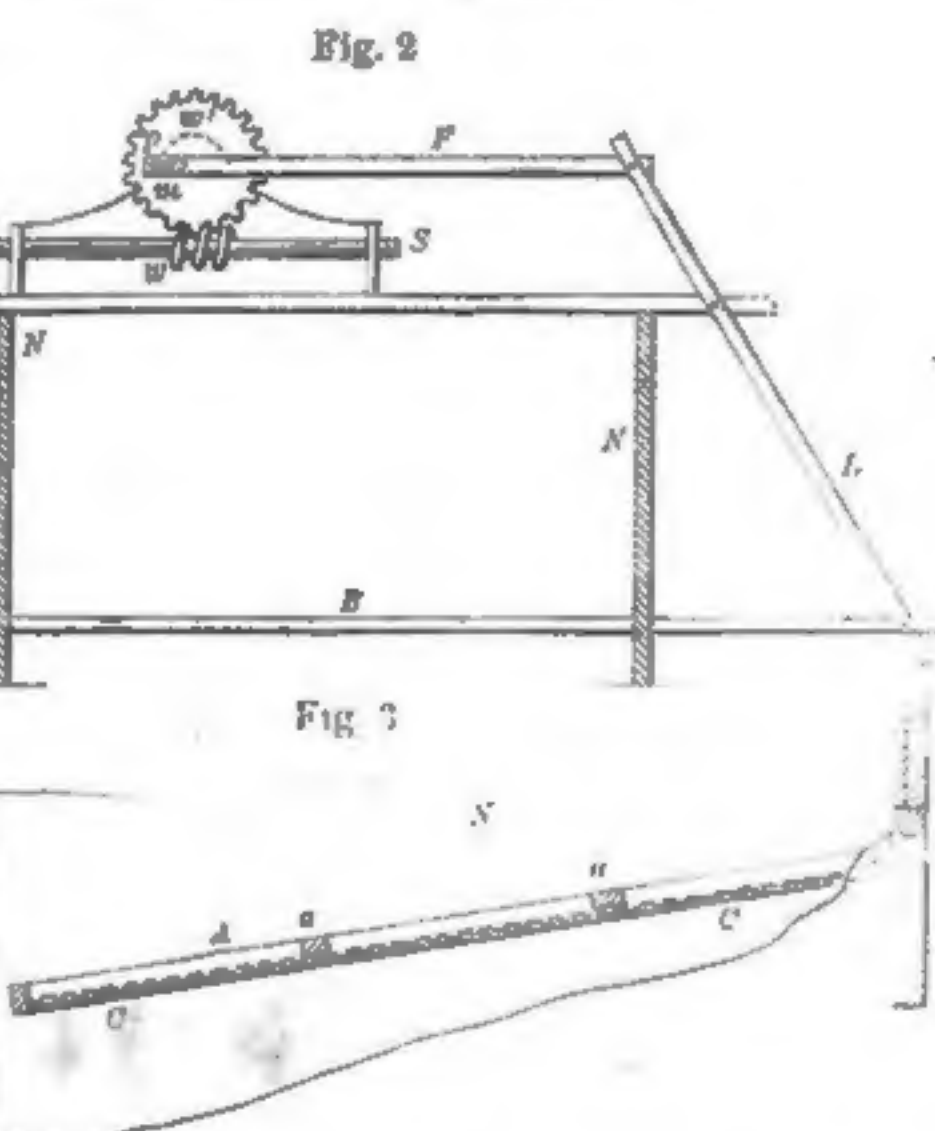
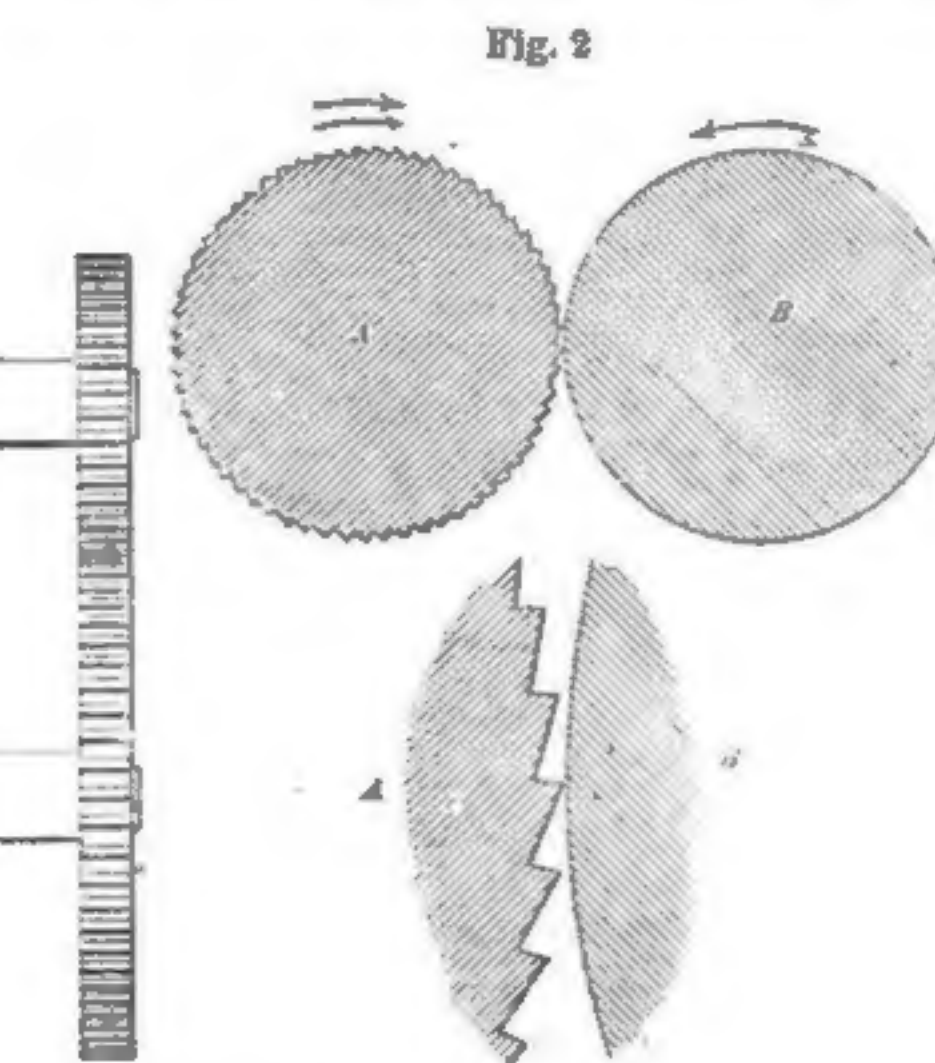
Fig. 2



PATENT 303,407. MEANS FOR CLEANING SIEVES OR BOLTING CLOTHS.

a longitudinal vertical section through *vv* of Fig. 1. The sieve-frame A is provided with longitudinal and transverse braces *a*, which serve to keep it in shape and the cloth D tightly stretched. In the frame these braces are set in the upper part of the frame, and the transverse braces are raised above the sieve; but the device will apply equally well to a frame in which the braces are placed beneath the sieve. At the head of the sieve is placed a horizontal rod, B, to which are attached following-chains C, somewhat larger than a large-linked watch-chain, which lie loosely upon the cloth, the only places at which they are fastened being to the rod B, as mentioned. The rod B moves slowly back and forth a sufficient distance each way to carry every chain from side to side of its compartment. This movement of the rod is so slow that each chain, by reason of its own weight, follows the movement of its head. When the rod reaches the limit of its movement in either direction, it remains stationary for a short time before reversing its motion, allowing time for the chains to straighten themselves

before beginning to return. The device can be used with a sieve in which the braces are put below the cloth by using the device arranged as herein described, or by lengthening the movement of the rod and employing only one chain. Instead of a chain, a long spiral spring may be used, or, in fact, anything else which will be sufficiently pliable to rest its whole length upon the cloth. In order to give the required movement to the rod B, the following mechanism is employed: A driving-shaft, S, is actuated by means of a band-wheel, E. This driving-shaft has attached to it a worm, *w*, which gives motion to the cog-wheel *w'*. The cog-wheel, by means of a crank-pin, *p*, operates the crank F, which again actuates the lever L, connected with the horizontal rod B. The opening *m*, through which the crank is connected with the pin, is a horizontal slot, which prevents the pin from moving the crank back or forth for a few moments as it passes the center on either side of the axis of the cog-wheel. The lever L passes through a slot, *g*, in the rod B sufficiently long to allow of the oscillating of the lever. The ends of the rod rest in and move through openings in the sides of the box N inclosing the sieve.



RECENT LEGAL DECISIONS.

(Bradstreet's.)

In a recent case, where merchandise was shipped under a bill of lading providing that no damage which could be insured against should be paid for, and where the merchandise which was insured was injured by sea water through the faulty construction of the ballast tank, owing to the negligence of the owners of the vessel, the latter were held liable. *Odio vs. The Steamer Hadgi*, decided by the United States Circuit Court

for the Southern District of New York on the 1st ult.

An offer of payment to constitute a tender must be understood as a tender absolute and unconditional, and to treat an offer of payment conditional upon a discharge from the whole debt as a tender is a fatal error. So held by the Supreme Court of Wisconsin in the case of *Elderkin vs. Fellows*, reported in the *Albany Law Journal*.

A policy of insurance issued to a mortgagor of real estate made payable to the mortgagee in case of loss is an insurance of the interest of the mortgagor in the estate and not of the interest of the mortgagee, and in such case the mortgagee is not an assignee of the policy, and is effected by subsequent acts of the insured. So held by the Supreme Court of New Hampshire, in the case of *Baldwin vs. Phoenix Insurance Company*.

Railway shares purchased by a partner in a firm with the firm's money, the shares in which were registered in his own name and the calls upon which were paid with the firm's money, were recently held to be "good in the possession, order or disposition" of the firm "in their trade or business," within the meaning of the words used in the English Bankruptcy act of 1883. The *Colonial Bank vs. Whinney*, decided by the Chancery Division of the High Court of Justice (England).

A trade-mark may be bought and sold in connection with the article with which it is associated in the same way as other property. It constitutes a part of partnership assets and is properly sold with the firm property. *Morgan vs. Rogers*, decided by the United States Circuit Court for the District of Rhode Island. The court held that a trade-mark being an asset there is no reason why it should not pass under the term assets in an instrument which conveys the entire partnership property.

The English Court of Appeal, had recently before it for interpretation, in the case of *Fraser et al. vs. Ehrensperger et al.*, a contract for the sale of a cargo of rice, "consisting of 1,650 tons (ten per cent. more or less), shipping weight, in bags, or such portion thereof as may arrive by the vessel, new crop Ngatsein, per Hakon Adelsten, about 908 tons register, expected to sail from Rangoon in March, 1883." It was further provided that the contract was to be void "should vessel fail to arrive at the port of discharge." The action was brought by the plaintiffs to recover damages for the failure of the defendants to ship or deliver the rice. The defendants contended that the contract was conditional on the arrival of the ship, and that there was no obligations on them to ship a cargo at all, but merely to deliver the rice if the ship arrived with the cargo on board. The Divisional Court gave judgment for the plaintiffs. The defendants appealed to the Court of Appeal, which affirmed the judgment. The master of the rolls in dismissing the appeal, said that the cases decide that where a cargo is to be sold "on arrival" or "to arrive," the arrival is a condition precedent to the delivery. Those decisions were, however, only applicable to that language. The contract in question was for the sale of a cargo of rice, or of such portion of the cargo or rice as might arrive. If, as had been contended, the contract was for the sale of such cargo of rice as might happen to arrive per Hakon Adelsten, the condition as to the contract being void on the failure of the ship to arrive, would have no meaning at all, and would have to be struck out as superfluous and unmeaning. His lordship de-

clared that the decision of the Divisional Court was clearly right.

RECENT PATENT RULINGS.

The evidence of prior invention is usually entirely within the control of the party asserting it, and so wide is the opportunity for deception or mistake that the authorities are almost unanimous in holding that it must be established by proof clear, positive and unequivocal—nothing must be left to speculation or conjecture.

Where a patented article is put upon the market without being marked "patented" as required by section 4,900 of the United States Revised Statutes, a person infringing the patent is liable only for the infringement made after receiving actual notice of the patent. *Allen vs. Deacon.*

Even though several patents cover inventions which are capable of being used conjointly, and which are made and sold as parts of the same electric lighting system, yet if the inventions may be used separately and operate independently with respect to each other, and any of them may be infringed without infringing the others, the

bill must be adjudged to be open to the objection of multifariousness.

When the complainant's patent was granted before the date at which the defendants' application was filed, it is incumbent upon the latter to prove beyond a reasonable doubt that theirs was the prior invention, and this being done, the burden is transferred to the complainant to satisfy the court, by proof as convincing as that required of the defendants, that his invention preceded theirs.

The purchase of a patented article from the patentee confers upon the buyer the right to use the article to the same extent as though it were not the subject of a patent; but the sale does not impart the permission of the vendor that it may be used in a way that will violate his exclusive property in another invention. *Roosevelt vs. Western Electric Company.*

WILHELM & BONNER,
Solicitors of Patents,
Attorneys and Counselors in
Patent Causes.
No. 284 Main St., Buffalo, N. Y.

PATENT MILLSTONE CEMENT

Invaluable to Millers for Repairs
ties and Seams in French

This is a new article of manufacture, and is common use by millers. It is much cheaper, son. It is perfectly harmless, containing nature and attains the hardness of French only fills the cavity, but adheres to and be-grinding. Good Millstones are now in use, composed entirely of



ing and Filling the Joints, Cavi-
Burr and other Millstones.

greatly superior to the preparations now in and can be applied by an inexperienced per-
thing of a poisonous nature. It has the Burr Stone, wears evenly with it, and not comes a part of the Stone, and assists in this preparation. The

LEADING MAKERS ARE ADOPTING IT TO BUILD THEIR MILLSTONES.

For miller's use, it is put up in cases of about 50 lbs. Price per case, \$5.00.

We cannot open an account for so small a sum, therefore Cash should be sent with order otherwise we shall send C. O. D. by Express, collecting for return of the money.

For manufacturers, we furnish in bbls. of 300 lbs. Price upon application.

Emery Rub Stones, for hand use in finishing the Furrows and Faces of Millstones.

Union Stone Co., 38 & 40
Hawley Street, Boston, Mass.

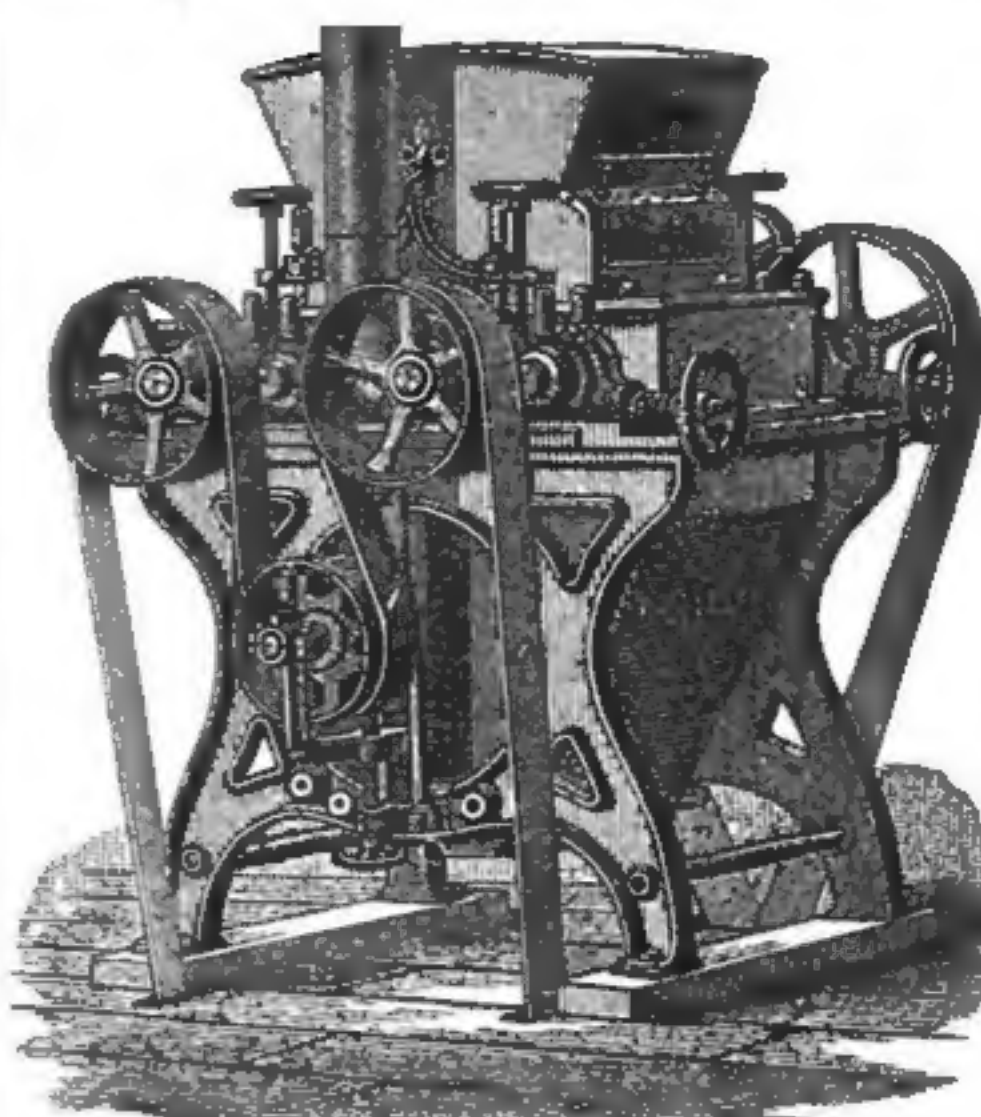
Union Emery Wheels, Emery Wheel Machinery and Tools a Specialty. Wooden Pol-
ishing Wheels, Grinders' and Polishers' Supplies. Catalogue on Application.

EMERY, QUARTZ, CORUNDUM.

GOVERNORS { For Water Wheels } Cohoes Iron Foundry & Mch. Co.
Send for Catalogue. Cohoes, N. Y.

Rickerson Patent Improved Roller Mill

ORIGINAL 6-INCH ROLLER MILL.



Requires Less Power to Drive,
Has Greater Capacity,
Better Granulation,
More Middlings

THAN ANY OTHER ROLLER MILL.

Patent Exhaust Attachment for
taking away Generated Heat.

Positive movement of the rolls. We will furnish de-
tails upon application. Send for our Circulars before
purchasing any Roller Mill.

O. E. BROWN MFG. CO.,

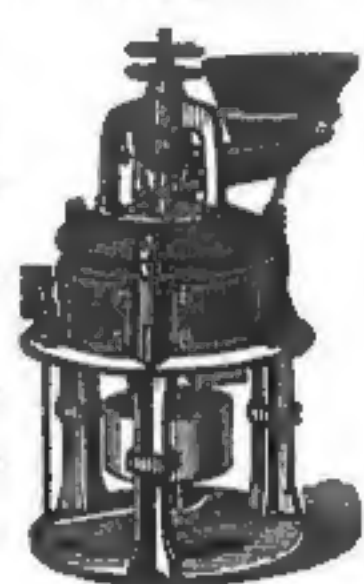
GRAND RAPIDS, MICHIGAN.

Buckwheat Refiners & Portable Mills



BREWSTER'S CELEBRATED
Buckwheat Refiner
is the only machine
whereby the greatest
yields of
PURE, WHITE
SHARP FLOUR
can be obtained.
The only reliable, prac-
tical and durable ma-
chine
IN THE WORLD.

THE POSITIVE ADJUSTMENT
AND AUTOMATIC
MIDDINGS MILL
Is Strictly Self-Protecting
The Best Adjustment in
the World.
And the only
Perfect Granulator
Grinds Cool, Self-Oiling, Great
Saving of Power.
**Simplicity and Durabil-
ity Combined.**



Satisfaction Guaranteed on all our Goods. Send for Descriptive Circular, giving Prices, Sizes, Terms, etc.

BREWSTER BROS. & CO. Unadilla, N. Y.



MUNSON BROS.

MANUFACTURERS OF

Munson's Celebrated Portable Mills,
FOR WHEAT, MIDDINGS, CORN, FEED, Etc.

Millstones, Hangings, Bolting Chests, Shafting,
Gearing, Pulleys, Hangers, Etc.

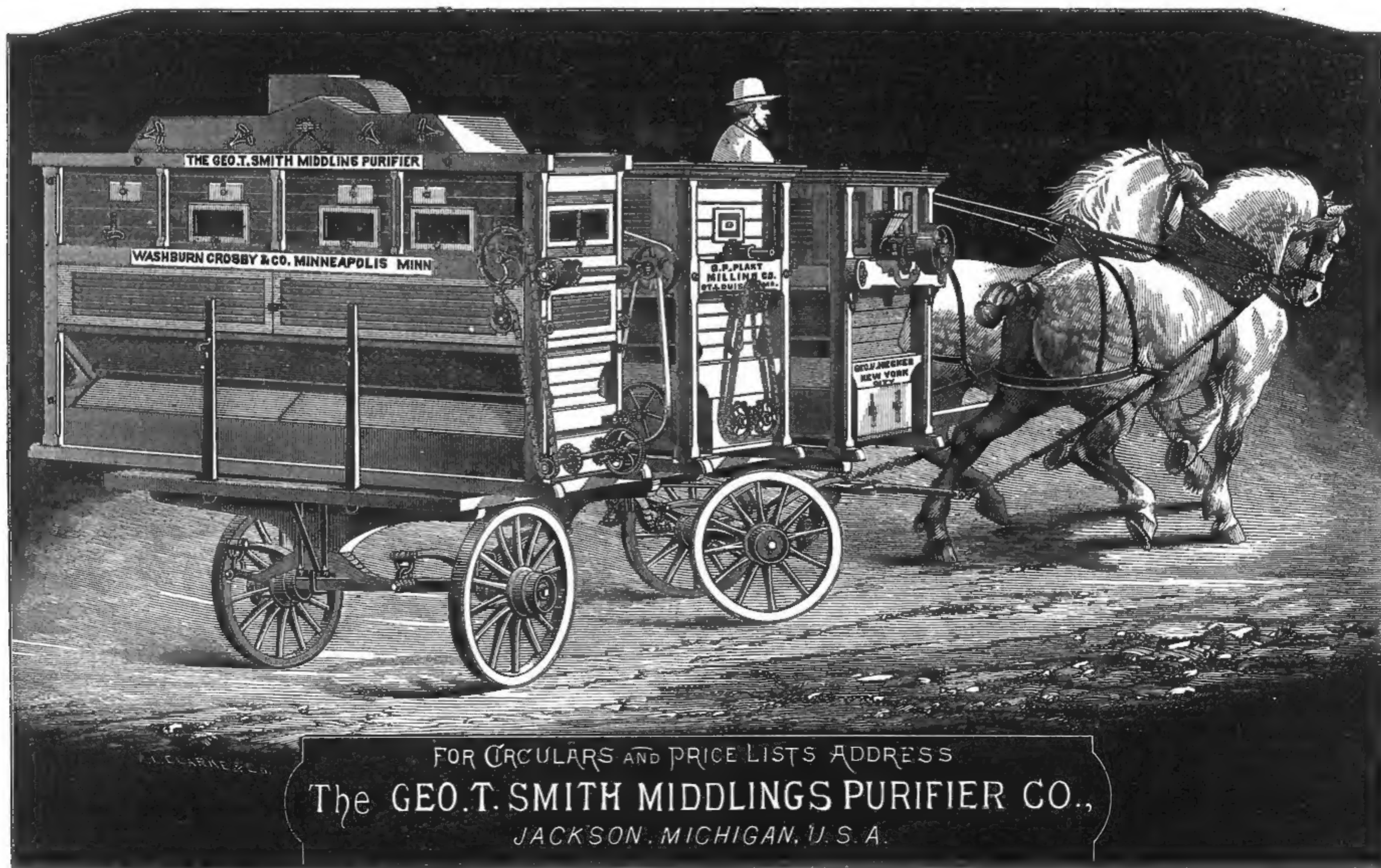
DEALERS IN EVERY KIND OF

MILLING MACHINERY,
ENGINES AND BOILERS, WATER WHEELS, Etc.

Genuine Dufour Bolting Cloth.

Specifications, Estimates and Plans furnished.

MUNSON BROS.
Address, P. O. BOX 380. UTICA, N. Y.



FOR CIRCULARS AND PRICE LISTS ADDRESS
The GEO. T. SMITH MIDDINGS PURIFIER CO.,
JACKSON, MICHIGAN, U. S. A.



BOILER FURNACES.

ACCORDING to the experiments of Peclet, the proportion of radiant heat from a bed of incandescent coal is one-half of the total heat of combustion, says the *Locomotive*. The practical conclusion to be drawn from this fact is that we should always so construct our boiler and arrange the furnace, whether the boiler be an internally or externally fired one, that the radiant heat shall be intercepted so far as possible by the heating surfaces of the boiler. This can be most perfectly accomplished by placing the furnace inside the boiler, as in the marine type. The next best, and one which is without doubt superior to all others for ordinary purposes, is the arrangement found in the ordinary horizontal tubular boiler. By keeping the furnace sides well away from the boiler nearly up to the water line, keeping the bridge wall well down and battering its face, making the grate rather longer and narrower than is the usual practice, where a given amount of grate surface is wanted, we may fulfill the conditions requisite for economy in a most perfect manner, and a boiler so set will have an evaporative efficiency fully equal to the best internally fired one, so long as the setting is kept in good repair.

It may be argued that in the detached furnace the radiant heat is taken up by the hot gases, and by them brought into contact with the heating surfaces of the boiler, and equally good results obtained, but this is a fallacy. The radiant heat passes through the gases of combustion without warming it. The only way in which the radiant heat can be communicated to these gases is by being previously absorbed by the brick walls over the furnace; this is communicated to the hot gases as they flow over the furnace sides, but its intensity is very much reduced, and consequently the resulting temperature of the gases is much lower when they reach the heating surfaces of the boiler, and the evaporative efficiency is reduced in proportion. The more the principles of the action of heat are studied, the more clearly we shall see the necessity of burning our fuel in such a manner as to produce the highest possible temperature, and of so arranging our furnaces that the source of heat may be as close to the most effective steam generating surfaces of the boiler as it is possible to be and allow the gases a chance to burn properly.

SETTING WATER WHEELS.

The first thing to be done in preparing to set wheels is to excavate wheel-pits (if there be none, or not of sufficient depth), put down mud sills and shut them over with two inch plank (unless there be rock bottom), says the *Artisan*. These pits must be from two to five feet in depth, according to the size of water wheel. It should always be borne in mind that too free a discharge cannot be made. Wheels should always be set so that the draft tube or cylinder will set at least two inches in tail water when standing. The tail race, as well as the wheel-pit, should be both wide and deep, and, if possible, the level of bottom of wheel-pit should be carried out the whole length of the tail race to the stream, which is easily done when the race is short. When the desired depth cannot be given the whole length of the tail race, it should be made up in width, and in this case the bottom of tail race should slope gently to the bottom of the wheel-pit, in order to avoid an abrupt opposing surface. There should be, if possible, two feet in depth of dead water in the tail race when the wheel is not running, in

order to avoid the raising of the water in the tail race and consequent loss of head. In placing the wheel, great care must be taken to see that the wheel sets perfectly level. No fastening is required to keep the wheel in position, as its own weight and the pressure of the water will hold it in place.

COAL DUST FUEL IN FRANCE.

The United States Commercial Agent at Nantes says that the coal dust, which was formerly rejected as worthless, is now consumed in immense quantities in France in the form of "patent fuel," or coal bricks. The natural supply of dust from the yards of the coal merchants being entirely insufficient for the needs of the brick works, the manufacturers, particularly in the Nantes district, import a large quantity of coal dust from Cardiff, Swansea, and Newport. The process of manufacture is very simple. The coal dust is mixed with pitch, and the mixture poured into cups attached to a belt, each cup containing just enough material for a brick of the size desired. The belt in its movement passes this material through a chamber where it is exposed to steam, which fuses the two substances into a homogeneous mass.

This is poured by the descent of the belt into moulds, where it is subjected to an enormous pressure by a hydraulic press or by machinery set in motion by a steam engine. The brick is square in form, its thickness being about one-third of its other dimensions, and it weighs five, ten, or fifteen pounds. Certain of the French railway companies refuse to accept fuel unless at least ten per cent. of pitch has been used for its agglomeration. It is stated that *briquettes* are preferable to ordinary coal for exportation to the colonies, and to warm climates on account of their compact storage and freedom from small fragments and dust, also for use on locomotives, both on account of economy of space and because firemen can always determine the amount of fuel they are employing in a given time, the weight of each brick being exactly known. The manufacturers claim that the "patent fuel" is more healthy for domestic use than ordinary coal, citing in support of this theory the declaration of certain well-known physicians. At the present day a large number of bricks are made for domestic use, of small size, and perforated with circular or longitudinal openings.

MAKING THE GRANARIES READY.

The weevil infested our wheat granaries several years ago, and since then we have been careful to scrub them out once each year with boiling-hot salt water. If the bins are not all empty when threshing time approaches, prepare those that are empty for the reception of grain, and transfer the old grain to these, and scald the bins just emptied. First, scrub the floor and sides with the boiling brine, being careful that it fills all the crevices. When this has well dried, prepare a thick whitewash, and with it coat the entire interior of the bins, filling the cracks with it. The day before threshing, take an old broom and sweep off the thickest of the whitewash. Since adopting this plan, we have had no pests in the granaries.

If the mice have gnawed holes through the sides, tack pieces of sheet iron or tin over these, and place well-trained cats in the granary. It is much better to have the boards jointed than to place lath over the cracks, as the inclosed cracks will be inhabited by pests, very difficult to reach and destroy.

The loss occasioned by pests is not measured by what they consume. Mice may not eat much, but they leave crumbs plentifully behind them, which detract from the appearance of the wheat and lower its

price, when it is sent to market. Weevils may not destroy much grain, but many millers will not buy grain infested with them at any price.—*J. M. Stahl, in Am. Agriculturist.*

* * The incrustation of cast iron pipes used for water flowing under pressure, has proven so serious an evil that several methods have been proposed for remedying it. Among the most recent modes of treatment, as described in the *Centralblatt der Bauverwaltung*, are the taking out the pipes from line to line, heating them and scraping out the deposit that is loosened by the heat; second, clearing them with brushes and scrapers before the deposit becomes hard; and third, dissolving the deposit with acid. It is stated that at Nuremberg and Carlsruhe the second method has been used with peculiar success. A brush that nearly fills the tubes is run backward and forward in the pipe while in muddy use, and the muddy slime is washed out immediately by the flow of water. In one case a net-work of pipes some fourteen miles long, and having a diameter of four to thirteen inches, was all cleaned by this means within seventy-eight days, and at a cost of less than three cents per yard. For introducing the brushes the pipes are provided with man-holes suitable distances apart. The deposit generally consists of oxide of iron and carbonate of lime.

* * A rubber lubricator for belts, possessing the property of imparting great durability, is described in the *Chem. Centralblatt*. Five parts of India rubber are cut fine and melted together with five parts oil of turpentine, in a well covered iron vessel, to which are added four parts of resin. This is stirred thoroughly and melted, and four parts of melted wax mixed with the same, the mass being constantly stirred while melting. This composition in its warm state is added, with constant stirring, to a melted mixture of some fifteen parts of fish oil and five parts of tallow, and the whole agitated until it is congealed. The compound is applied to old belts upon both sides in a warm place, and, when belts are in use, from time to time upon the inner side.

* * A French engineer has recently been awarded a Montyon prize for having "perfected" a fireless locomotive, and having made practicable its application to traction on canals and railways. The locomotive takes in, from a fixed generator, enough steam to last it for a trip (it must be a short one) of train or boat, and thus obviates the necessity of a furnace and coal carriage. A reservoir containing hot water is charged with steam at the beginning of each trip. A line of tramway between Reuil and Marly, another between Lille and Roubaix, and a tow boat on the Canal de l'Est are now being worked by this process.

* * One of the uses to which it is proposed to put the locomotive electric headlight, we are informed by the President of a railroad, is to have a second illuminator placed on the rear of the engineer's cab, throwing a flood of light over the train, and so arranged that it can be turned to the right or left and be made to illuminate the station grounds when the train is at a standstill. This will be a grand improvement, which the traveling public will thoroughly appreciate.

—During the last week of July new corporations were reported as being formed throughout the country, with a capital of \$1,100,000, for electric lighting. The business is "picking up" in a healthy manner.

—The Yankton, Dakota, coal vein has been drilled into five feet, and is supposed to be much thicker. The quality is good.

—St. Louis, we are told, aspires to the honor (and expense) of having a World's Fair in commemoration of the 400th anniversary of the discovery of America.

—It was Prof. Wilber, who stated that the block coal of Indiana, like the Briar Hill coal of Ohio, are best for smelting, but in comparison with the Illinois coals (near St. Louis) for steam purposes they are inferior, and rate as 73 to 100; that is, seventy-three bushels of Illinois coal will secure the same locomotive service as one bushel of block or Brazil coal.

—Commissioners from most of the Central American states have visited New Orleans to secure large spaces for their respective collections, all of which will be of the same general character as that made by Mexico. The Latin-American nations buy annually more than \$400,000,000 worth of goods from other countries, and of this the United States has but a small portion, Great Britain and Germany taking the larger share.

—A recent report of the State Department of Public Works, of New York, on the tonnage on the canals for the first three months of the year shows a reduction in tonnage as compared with that of last year's. The following table gives the statement of tonnage:

| | 1883. | 1884. |
|-------------|-----------|-----------|
| May..... | 608,501 | 660,991 |
| June..... | 838,342 | 661,065 |
| July..... | 732,680 | 761,797 |
| Totals..... | 2,180,473 | 2,083,853 |

This statement shows a loss of 106,620 tons in three months, or in the same ratio a probable reduction of 250,000 tons by the close of the season. A surprising result is shown by a comparison of this year's tonnage with that of the same period in 1882, when tolls were imposed. The tonnage then was for May, 712,685; June, 703,402; July, 700,711—a total of 2,116,828 tons, showing a reduction of 52,975 tons this year as against a season when boatmen were compelled to pay tolls to the state. In 1882, however, the canals were opened much earlier than in either this year or last year. A great lack of trade is the chief cause assigned for this reduction, the principal gain in tonnage being made in lumber, wheat, coal and iron ore, while the great canal staples have been in little demand. It is not believed that any apprehension need be felt, however, of the failure of free canals, as the changes from loss to gain are rather spasmodic.

BURNHAM'S IMPROVED Standard Turbine

IS THE
Best constructed and finished,
gives better *Percentage*, more
Power, and is sold for *less*
money, per horse power, than
any other Turbine in the world.
New Pamphlet sent free by

Burnham Bros., York, Pa.



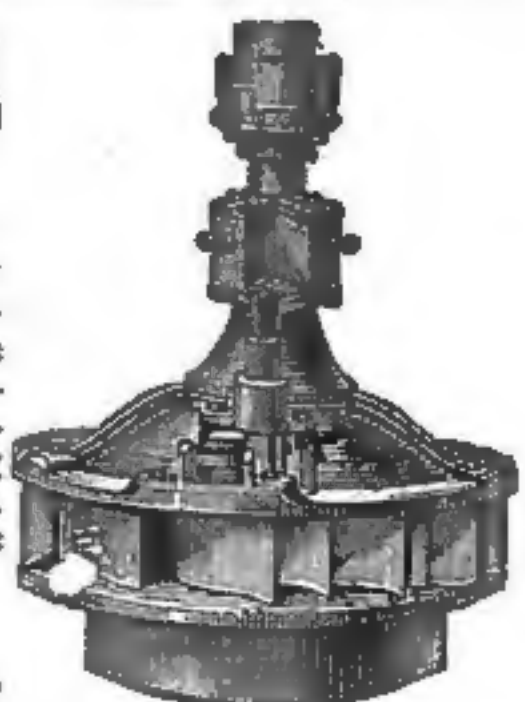
KEISER TURBINE

Only Best Wheel Built.
Examine its construction and be convinced. The only wheel that really distributes and applies the water correctly and scientifically at all stages of gate, and at the same time closes water-tight and has an easy working, balanced, gate. Tell us about your water power.

KEISER MACHINE CO.
ALLENTOWN, PA.

MERCER'S RELIABLE Turbine Water Wheel.

This wheel is acknowledged one of the best on the market. Has valuable improvements in the construction which is commanding the attention of buyers. Send for catalogue and price list. T. B. MERCER,
WEST CHESTER, PA.
CHESTER CO., PA.





THE VICTOR TURBINE

Possesses more than Double the Capacity of other Water Wheels of same diameter, and has produced the Best Results on Record, as Shown in the Following Tests at Holyoke Testing Flume:

| Size Wheel. | Head in Ft. | Horse Power. | Per Cent Useful Effect |
|-------------|-------------|--------------|------------------------|
| 15-inch. | 18.06 | 30.17 | .8932 |
| 17 1/2 in. | 17.96 | 36.35 | .8930 |
| 20-inch. | 18.21 | 49.00 | .8532 |
| 25-inch. | 17.90 | 68.62 | .8584 |
| 30-inch. | 11.65 | 52.54 | .8676 |

WITH PROPORTIONATELY HIGH EFFICIENCY AT PART-GATE.

Such results, together with its nicely-working gate, and simple, strong and durable construction, should favorably commend it to the attention of ALL discriminating purchasers. These Wheels are of very Superior Workmanship and Finish, and of the Best Material. We also continue to manufacture and sell at very low prices the

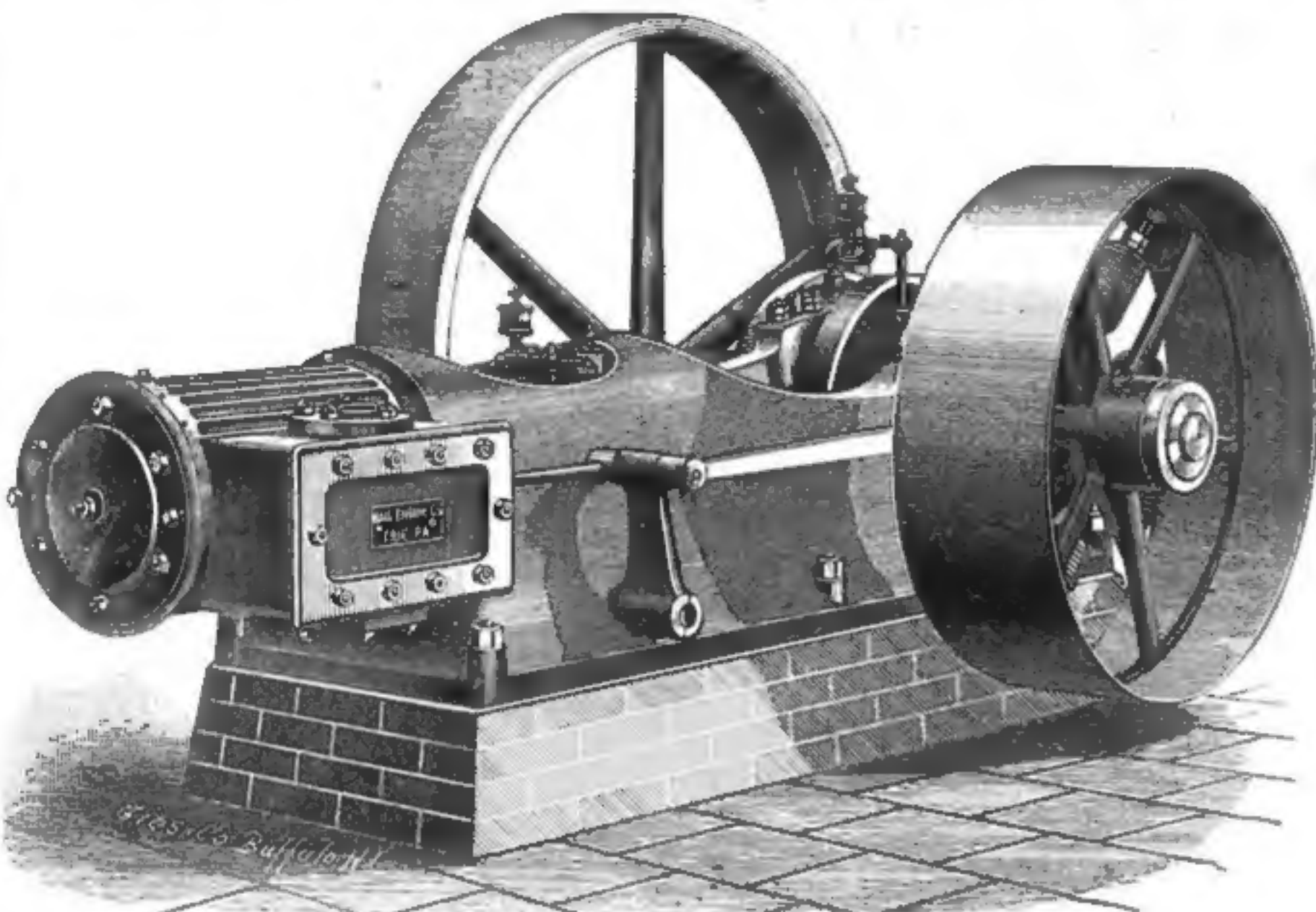
ECLIPSE DOUBLE TURBINE,

So long and favorably known. State your requirements, and send for Catalogue to the

STILWELL & BIERCE MANUFACTURING CO.,
DAYTON OHIO U. S. A.

BALL ENGINE CO., ERIE, PA.,

WE INVITE CORRESPONDENCE.



WE INVITE CORRESPONDENCE.

Builders of High Class, Automatic Cut-off, Engines for Every Duty.

LEFFEL'S WATER WHEEL

MADE BY JAMES LEFFEL & CO.

The "OLD RELIABLE"

with improvements, making it the

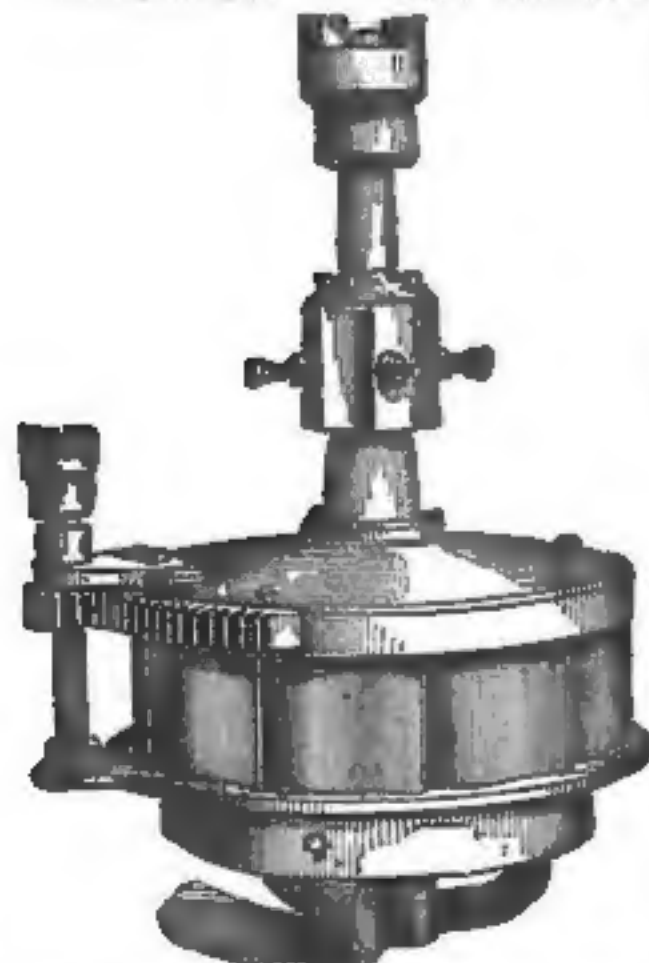
MOST PERFECT TURBINE
NOW IN USE.

Comprising the Largest and the Smallest Wheels, under both the Highest and Lowest Heads used in this Country. Our new Illustrated Book sent free to those owning water power.

Those improving water power should not fail to write us for New Prices before buying elsewhere. New Shops and New Machinery are provided for making this wheel. Address

JAMES LEFFEL & CO., SPRINGFIELD, OHIO, AND 110 LIBERTY STREET, N. Y. CITY.

LESNER'S IMPROVED TURBINE.



Simple,
Durable,
Strong.
Gate Works
EASILY
—AND—
RAPIDLY.
PERFECT
Satisfaction
—IS—
GUARANTEED.

W. B. WEMPLE'S SONS, FULTONVILLE, N. Y.

Improved Success

Percentage.

Full Gate.....86.29

3/4 Gate.....86.07

1/2 Gate.....81.90

This Wheel is Durable and Cheap.

Send for Pamphlet to
S. MORGAN SMITH,
YORK, P.A.



This Wheel gives high results, and is acknowledged the best, most practical and efficient Turbine made. For Simplicity, Durability, and Tightness of Gate it has no equal. State requirements and send for Catalogue to
T. C. ALCOTT & SON,
MOUNT HOLLY, N. J.

Send for
Catalogue
and
Prices.



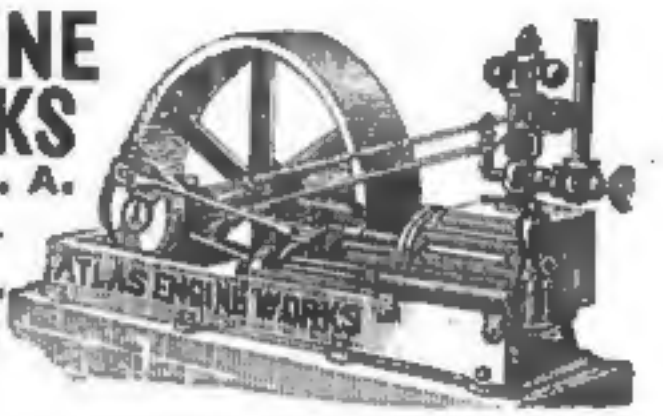
ATLAS ENGINE WORKS

INDIANAPOLIS, IND., U. S. A.

MANUFACTURERS OF

STEAM ENGINES & BOILERS.

Carry Engines and Boilers in Stock for immediate delivery.



POOLE & HUNT'S LEFFEL TURBINE WATER WHEELS

Made of Best Materials, and in the Best Style of Workmanship.

MACHINE-MOLDED MILL GEARING

From 1 to 20 feet diameter, of any desired face or pitch, moulded by our own Special Machinery.

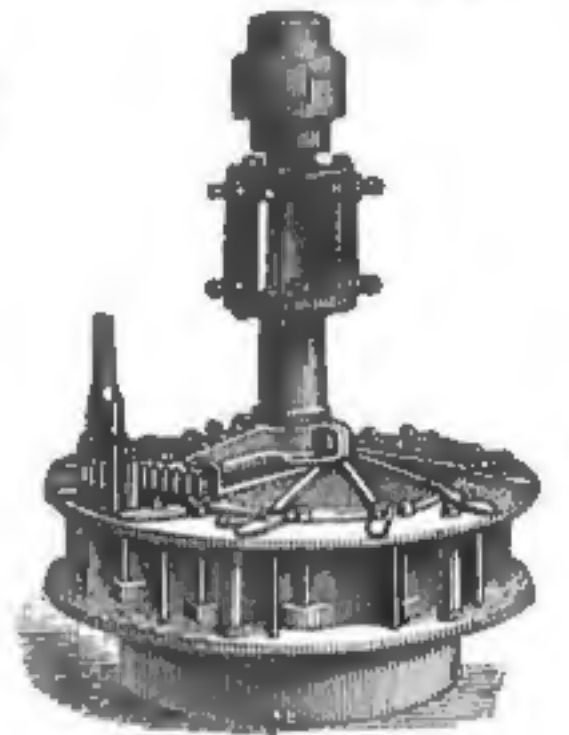
SHAFTING, PULLEYS AND HANGERS

Of the Latest and Most Improved Designs

Engines, Boilers,

Mixers and General Outfit for Fertilizer Works.

Special Attention given to Heavy Gearing. Shipping Facilities the Best in All Directions.



POOLE & HUNT, BALTIMORE, MD.

BLAINE and CLEVELAND!

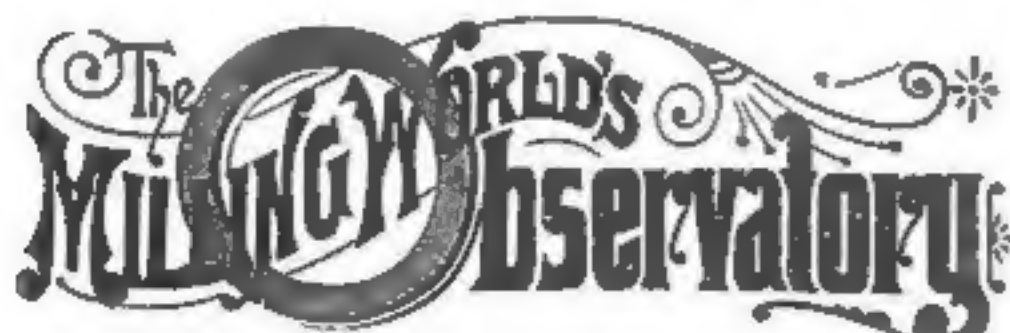
ARE BUSY RUNNING FOR THE PRESIDENCY.

We are busy running our factory to fill our orders from the millers. One of them writes us to-day (he has our full roller mill): "I never saw such results as I am getting from your 1st and 2d Breaks. The work is just perfect, little or no break flour, and that a very dark color, while at the same time each and every grain is split exactly in the crease. My mill is just perfect, and could not well be improved."

We Can Do Just as Well for the Next Man. Address,

CASE MANUFG. CO.

COLUMBUS, - OHIO.



OUR MINNEAPOLIS LETTER.

[From our own correspondent.]

A PROBABLE FALLING OFF IN FLOUR PRODUCTION—STOCKS OF OLD WHEAT RAPIDLY FALLING OFF—NEW WHEAT SLOW IN COMING IN—WHEAT GRADES FOR NEXT YEAR PROBABLY DECIDED UPON—THE COOPERS GET THE BETTER OF THE MILLERS—THE ANOKA FIRE—GOSSIP AND NOTES.

Our mills are easing off some in their operations. There are three—the Crown Roller, Columbia and Standaard, each of a thousand barrels capacity or over—which have been closed down for improvements to the raceway of the former two, while two others—the Cataract and Holly—are cut off from running day time by the same cause. The job will take two to three weeks for its execution, and will keep the mills closed that long. Beside the mills above enumerated, there are the Excelsior and Zenith doing nothing, making in all about 4,300 barrels capacity that is idle at present. The flour production last week was 100,000 barrels, but it will be at least one-quarter less this week, showing the lightest output for some time. The mills in operation keep up a steady gait, neither crowding nor running at a slow motion. The flour market is steady and offers some features of encouragement, the demand being rather on the increase, though prices remain at a low range. The export movement continues extremely light, the greater portion of trade being from the East. Millers seem to be divided in opinion as to the future. One wing is talking about old wheat becoming scarce, and old flour consequently getting to a position where it will be in large demand at fancy prices; while the other side claims that the new crop of wheat, if secured in prime condition, will make a flour at once outranking that from old wheat. Quite an amount of new wheat has already been ground by our mills, and while not fully cured, it has proven so excellent in quality that the latter view of the situation seems to be the best taken. Quotations of flour are as follows: Patents, \$5.25 @5.50; straights, \$4.80@5.15; first bakers, \$4.25 @4.50; second bakers, \$3.90@4.25; best low grades, \$2.20@2.40 in bags; red dog, \$1.60@1.80 in bags.

The receipts and shipments at Minneapolis for two weeks are shown in the appended table:

| FLOUR | | | |
|--------------------|----------------|-----------------|------|
| Week ending | Receipts Bbls. | Shipments Bbls. | Bus. |
| Aug. 12, | 500 | 102,000 | |
| Aug. 19, | 500 | 97,766 | |
| Total | 1,000 | 199,766 | |
| WHEAT. | | | |
| Week ending | Receipts Bus. | Shipments Bus. | Bus. |
| Aug. 12, | 235,000 | 58,500 | |
| Aug. 19, | 291,000 | 25,500 | |
| Total | 526,000 | 83,000 | |

The stock of wheat in Minneapolis and St. Paul elevators is decreasing now quite rapidly. Last Monday there was only 650,000 bushels in Minneapolis and 30,000 in St. Paul. Of that in this city, 167,800 bushels was No. 1 hard, 81,062 bushels No. 2 hard, 274,323 bushels No. 1, 78,016 No. 2 and 7,917 No. 3. New wheat is coming in to some extent, and is found to be of a high quality. Large receipts at the start, however, are hardly looked for, it being the belief that farmers will more generally hold their wheat for a while on account of the low prices prevailing. Last year prices were high and receipts were very large from the start. The very heavy rains early in the week are reported to have done no particular damage to wheat, though stopping harvesting operations, but are a God-send to corn and other grain. Strictly hard old wheat is becoming limited in supply here, and prices have an upward tendency. Other grades are steady. On change to day No. 1 and No. 2 hard was wanted by the majority of buyers and sales were made of those grades at an advance. No. 1 old hard sold at 94@95; No. 2 hard at 91@91½; No. 1 at 83; No. 1 new at 78 and No. 2 new at 76c.

Committees from the Minneapolis Chamber of Commerce, the Duluth Board of Trade, and Dakota grain inspectors, have been in consultation the past ten days about the establishment of uniform wheat grades on the new crop, and have come to an understanding which cannot fail to be mutually beneficial to all concerned. After due consideration the following rules have been formulated for Minneapolis, and will be submitted to the Chamber of Commerce for ratification, which

will undoubtedly be given: No. 1 hard spring wheat shall be composed of not less than 85 per cent. of Scotch life, which must be sound, plump, dry, well cleaned, and weigh not less than 58 pounds to the measured bushel; No. 2 hard spring of not less than 80 per cent. of Scotch life wheat, which must be sound, dry, reasonably plump and reasonably clear, and weigh not less than 56 pounds to the measured bushel; No. 1 spring of sound, dry, plump, well cleaned spring wheat, and weigh not less than 58 pounds to the measured bushel, and to consist of not less than 30 per cent. of Scotch life wheat; No. 2 spring of sound, dry, reasonably plump and reasonably clean spring wheat, and weigh not less than 56 pounds to the measured bushel; No. 2 northern of sound, dry, reasonably clean and reasonably plump spring wheat, weighing not less than 56 pounds to the measured bushel, and consist of not less than 30 per cent. of Scotch life wheat. The grades of No. 4 and Extra No. 1 were stricken from the rules, and the dockage system as now practiced was ordered abolished at the end of the present crop year.

By the working coopers of Minneapolis going into a close organization and acting together, they got a twist on the miller by which they have forced him to pay their own price for barrels. Two weeks ago all oak, ten-hoop barrels were selling at 35 to 38c., while now all the shops are getting the uniform price of 44c. Five cents of the advance went to the working cooper, allowing him 17c for making hand made barrels. The advance amounted to quite a large item to the miller, and he did a good deal of hard "kicking" against it at first, but finding that there was no way around the matter, he finally acquiesced. With more coopers shops than there is business for, it seems improbable that the coopers can hold together a great while and maintain the price that they have fixed on barrels. Our coopers have been working at starvation wages for some time, and it seems no more than fair that they should now come in for a good thing for a while.

Anoka, a thriving little city nineteen miles north of Minneapolis, was visited by a most destructive fire on the 16th inst. Its business part was entirely swept away in a few short hours, together with the extensive milling property of W. D. Washburn & Co. The fire was first discovered about 2.30 a. m., and is now believed to have been the work of an incendiary. A drouth having prevailed for a long time, everything was in ripe condition for the conflagration, and when once started, the flames devoured half a million dollars of property as with a whirlwind. W. D. Washburn & Co., carried on the lumbering and milling business in Anoka on an extensive scale, and the place owes much of its present importance to the firm. Washburn Co. owned and operated two flour mills there, the Lincoln and Custom, and both were included in the common ruin wrought by the fire. The Lincoln mill was one of the best in the State, and the largest outside of Minneapolis, having a capacity of 850 barrels. The "Custom," as its name implies, did an exchange business, and was not large. The Lincoln was erected in the summer of 1881, and was a frame structure 65x130 feet, and four stories and cupola in height. Its machinery included 50 double sets of Gray's rolls, 5 runs of stone, 22 purifiers, 7 centrifugal reels, 4 Kurth cockle machines, 5 Barnard & Leas separators, 4 brush machines, and a Morgan scourer. Its motive power, water and steam together. The two mills and their coopers employed about 80 men, who are thrown out of employment. Thos. L. Clark, of this city, was head miller of the large mill. The loss on the two mills is placed at \$140,000, with \$96,000 insurance. The dam of the company caught fire once, and but for timely assistance rendered by the Minneapolis and St. Paul fire departments, it would have been destroyed. The loss seems like a local one to us, as the members of the firm of W. D. Washburn & Co., are residents of Minneapolis. J. E. Stevens, Jr., was manager of the mills. Whether the Lincoln mills will be rebuilt has not yet been fully decided, though the chances seem favorable for it.

Once more we hear a great deal about low water. With an unusually dry summer, the volume of water in the river has fallen away until there is hardly enough to meet the demands for power made upon it. Last week, when most of the mills were running, many of them had to reduce their feed from the lack of power. This week there are a less number of mills in operation, while a three days' rain has had a material effect on the river, and the demand for power is fully met. As the rain referred to was quite general, a great deal of good is expected to result from it. While rains are predicted this fall which will relieve the situation of its embarrassing features, there is no disguising the fact that our millers

look forward to operations this winter with a great deal of solicitude, fearing a repetition of their experience a year ago. Rather than undergo like trials again they would undoubtedly prefer to follow C. A. Pillsbury & Co.'s example in supplementing their water power with steam.

Notwithstanding the dangerous condition of the cover to the canal, the replacing of the old one with a new one will now probably be postponed another year. What prevented the improvement being made was the unwillingness of some of the mills to shut down for it, they having old wheat on hand which they wanted to convert into flour as speedily as possible. A horse breaking through just above Sixth avenue, quite a section of the cover in front of the Dakota & Cataract mills was torn up, and had to be repaired. The work required several days, all the mills being forced to shut down Monday for it, and when done it was a patched-up job and not a permanent one.

Jas. McDaniels, head miller of the Washburn A mill, and family, left this week for New York state, going via the lakes. Mac. will visit his old home, as well as Rochester, Buffalo, New York city, etc., and will be gone about five weeks.

We attempted to say in our last letter that the Millers' Association represented a milling capacity of about 23,000 barrels, when the ever ready printer made us say 2,300 barrels.

On the 11th inst. the Pillsbury A mill lacked 50 days of having worked a year on this crop, and had made one million barrels of flour.

"Deacon" Williams, formerly of the Minnetonka Mill Co., has gone to Henderson, Minn., to act as head miller of the Paul mill.

The three Christians, J. A., Geo. A. and Lew, and C. E. French, are up on the Northern Pacific road chicken hunting.

Louis Fiechter is now located at Lima, Ohio, the Lima Mill Furnishing Co. manufacturing his centrifugal reel.

The operative force of the Pillsbury A mill numbers about 225 people.

Minneapolis, August 23.

CALEB.

Notes from the Mills.

Britt, Minn., has raised \$2,000 bonus and is to have a \$15,000 flouring mill.

A new elevator is in course of erection at Steele, Dakota and a new two hundred-barrel flouring mill is to be built at an early day.

A. H. Fairchild & Son, North Bloomfield, N. Y., have ordered one pair of rolls with patent automatic feed from the Case Mfg. Co., Columbus, O.

The Richmond City Mill Works, Richmond, Ind., have ordered one pair rolls with patent automatic feed from the Case Mfg. Co., Columbus, O.

American corn will be welcomed in Italy this year, since the crops have suffered from cold and unseasonable weather. Both the wheat and vines have suffered severely.

The Case Mfg. Co., Columbus, O., received a cablegram from A. B. Childs & Son, London, England, for two pair rolls with patent automatic feed, and two purifiers.

The Case Mfg. Co., Columbus, O., have an order from A. F. Ordway & Son, Beaver Dam, Wis., for two pair rolls with automatic feed, to be shipped to Madison, Wis.

Barnard & Leas Mfg. Co., Moline, Ill., has ordered one "Little Giant" Break machine and scalper combined, from the Case Mfg. Co., Columbus, O., to be shipped to Thomas Bros., Madison, Neb.

A 300-barrel all roller mill is now being erected at Greeley, Colorado, for Eaton & Strong. The motive power will be a 100-horse power automatic engine. The entire outfit is being furnished by Nordyke & Marmon Co., of Indianapolis, Ind.

The Case Mfg. Co., Columbus, O., have secured the contract of Giers & Bruntfelt, Alta, Iowa, for a full line of breaks, rolls, purifiers, scalping reels, centrifugal reels, bolting chests, &c., for a complete gradual reduction mill on the Case system.

C. B. Maurer, the well-known stave man, of Akron, O., is erecting a 200-barrel all roller mill, using eight breaks. The contract has been awarded to Nordyke & Marmon Co., of Indianapolis, Ind. It will be known as "The Daisy Roller Mills."

The Case Mfg. Co., Columbus, O., have been awarded the contract of H. Smith & Co., Grafton, Wis., for a complete outfit of breaks, rolls, purifiers, scalping reels, centrifugal reels, bolting chests, &c., for a full roller mill on the "Case" system. Twelve pairs of rolls with patent automatic feed will be used.

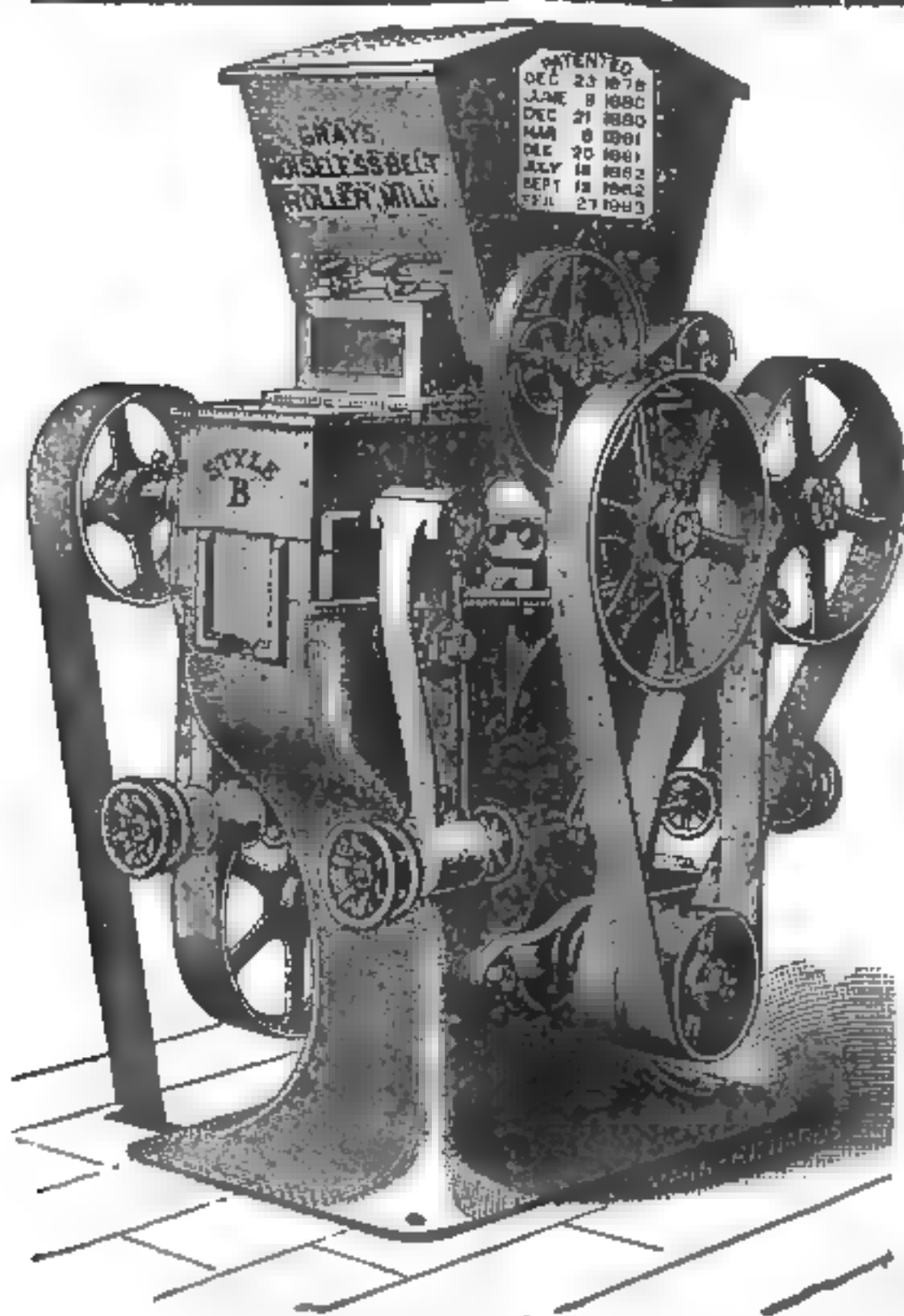
Immediately after the destruction by fire of McDonald's mill at Batavia, 30 miles east of Buffalo, particulars of which appear elsewhere on this page, comes the news of the proposed erec-

tion of a new 75-barrel all roller mill at the same place, by L. F. Nobles. The entire outfit of machinery, including power, will be furnished by Nordyke & Marmon Co., Indianapolis, Ind.

A recent note from Stilwell & Bierce Mfg. Co., Dayton, O., informs us that they are full of work clear up to the roof of their shops, and are running nights until ten o'clock. This doesn't look much like depression. Apropos of this the Stilwell & Bierce Co. some months since contracted with Geo. Shaw & Sons, of Cork, Ireland, for a complete outfit of rolls to change their "John Street" mill over to a complete roller mill of 150 barrels capacity on Odell's system, under a guarantee that the results should prove superior to those obtained in their "Kitnap" mills which were operating on the most approved combined roll and stone system. The results are stated in the following lines which Stilwell & Bierce have just received from them, "Mr. White has now completed the mill to our satisfaction, and having compared the results with those of Kitnap, we beg to say that we shall accept the machinery you supplied. He leaves us this day, and we must say that he has spared no effort to bring about this result, and we are greatly pleased at your having sent over a gentleman who has such a thorough knowledge of the business." Letters such as this are not bad to take.

The Cumber Engine Co. have sent a 130-horse power engine to the Louisville Exposition, to drive several of the electric light dynamos exhibited. They will also furnish one of their Ballantine ice and refrigerating machines and a 130-horse power engine for the St. Louis Exposition. The engine will drive an important line of shafting, and the refrigerating machine will be used to keep a comfortable temperature in the music hall and for refrigerating any perishable articles that may be on exhibition. The following orders have recently been lodged with the Cumber Co.: one large refrigerating machine, with oil drip and purifier, for the Crescent Brewing Co., of Aurora, Ill., to displace a machine of another make; three refrigerating machines, with apparatus complete, for the large brewery of Hensler & Sons, Newark, N. J.; a 120-horse power engine, with boilers and outfit complete, for W. H. Cherry & Co., Mountain Mills, Ala.; two engines, one 25 and the other 105-horse power, for the Brooks-Ross Lumber Co., Schofield, Wis. The following are among the recent shipments of this company: A 55-horse power engine, with outfit complete, for the Fort Wayne Jenney Electric Light Co., for their new plant at Goshen, Ind., and a 55-horse power engine, outfit complete, for the flour mills of A. Dietly & Son, Moorheads, Pa. In addition to the above they expect to ship two more good-sized engines, and another refrigerating machine in the early part of next week, and report orders coming in freely. Cumber engines have just been started in the following places: Amoskeag Cotton Mills, Manchester, N. H.; saw mill of A. L. Johnson & Co., Muncie, Ind.; linseed oil mills of J. P. Evans & Co., Indianapolis, Ind., and in the flouring mills of C. B. & D. H. Cowan, Canal Winchester, Ohio.

A fire broke out at the Genesee County Flour Mills, at Batavia, N. Y., owned by D. A. McDonald, shortly after eight o'clock on the evening of August 20, in one of the upper stories. The fire burned very rapidly, and it was soon beyond the power of the firemen to save the building. A large barn to the west of the mill was also burned. The water works were located in the mill, and the engine room and large water tank being burned, Batavia is now without water privileges. The Genesee County Mills have been an institution of the place for upwards of eighty years, having been built about the year 1802. The mill has been enlarged from time to time, until it ranked as one of the largest and best mills in Western New York. It has been owned and operated by a great many different men, and has always been profitable. Mr. McDonald, the present owner, has conducted it for the past five or six years, first with a partner and latterly alone. He has improved it greatly by putting in new machinery and valuable additions, and at the time of its burning it was one of the best equipped and best paying mills hereabouts. It could be run by either steam or water. Mr. McDonald had the contract to supply the village with water for fire and other purposes, which yielded him a good revenue. The insurance upon the buildings, machinery, and stock is found to be greater than first reported. Altogether Mr. McDonald has about \$26,500 insurance in good companies. The inventory of stock on hand, which consisted of barreled and sacked flour, grains, and ground stuff, will foot up \$12,000 or \$14,000; the mill and other buildings, say \$7,000; engine, boiler, and machinery, etc., perhaps \$10,000, making a total of about \$30,000. So it would seem that Mr. McDonald's actual loss over insurance will not be so great as at first supposed.



GRAY'S NOISELESS BELT ROLLER MILLS.

STYLE "B" for SMALL MILLS

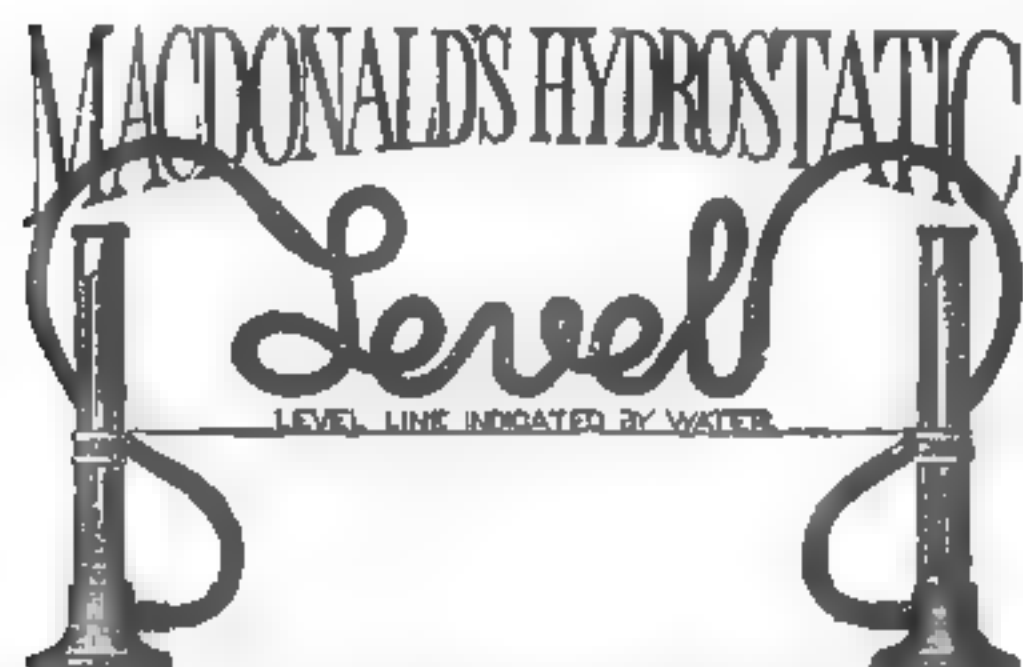
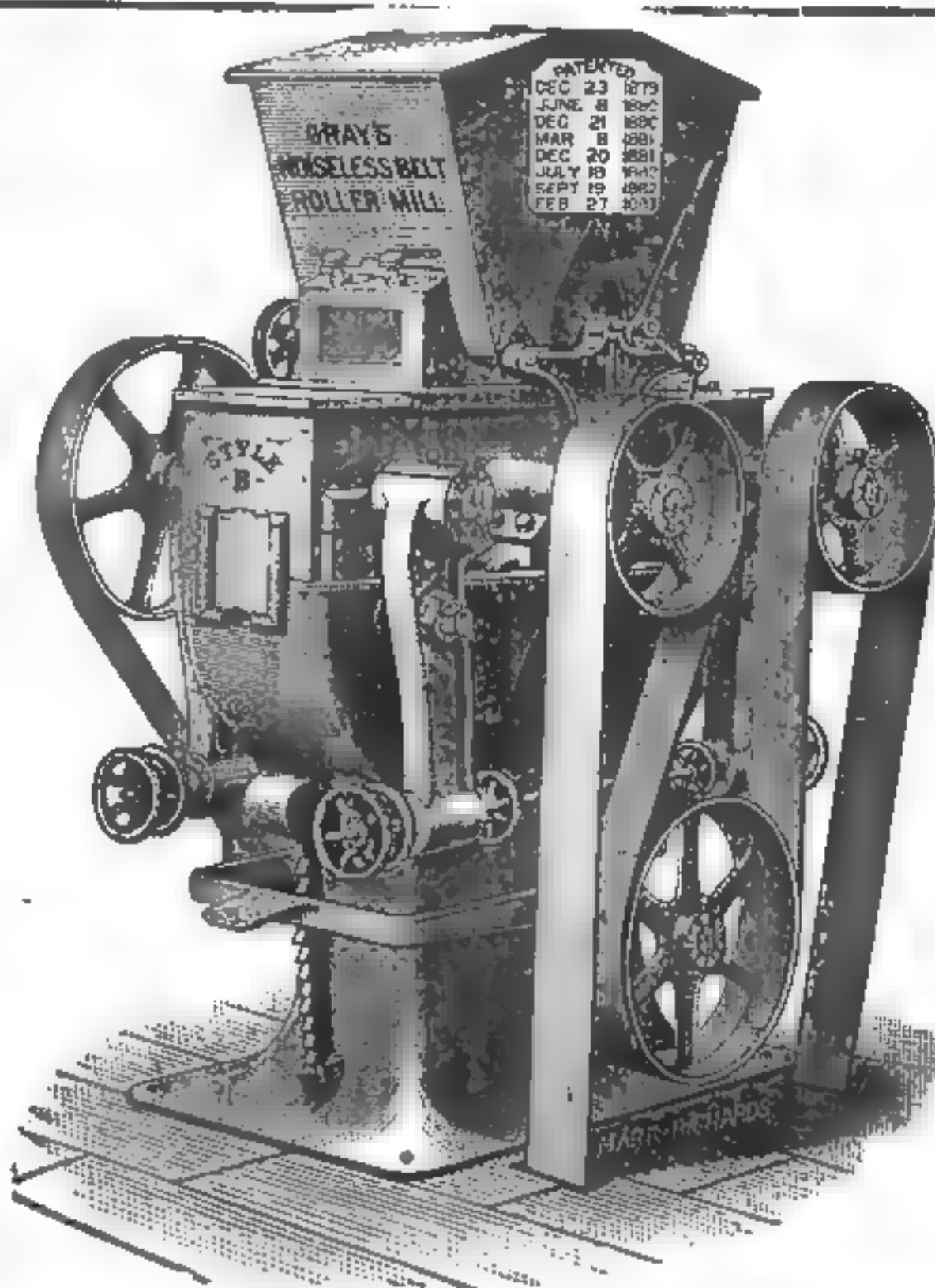
Send for Circulars and Prices.

E. P. ALLIS & CO.

SOLE MANUFACTURERS,

RELIANCE WORKS,

MILWAUKEE, . . WIS.



Sight-lines, targets, straight-edges and all other fixings, as well as the extra time and help required to work them with the spirit level, done away with by this instrument. Jas. Macdonald, 55 Broadway, New York.

GREAT TRIUMPH IN INVENTION

The Simplicity so long sought after in Roller Mills attained at last.

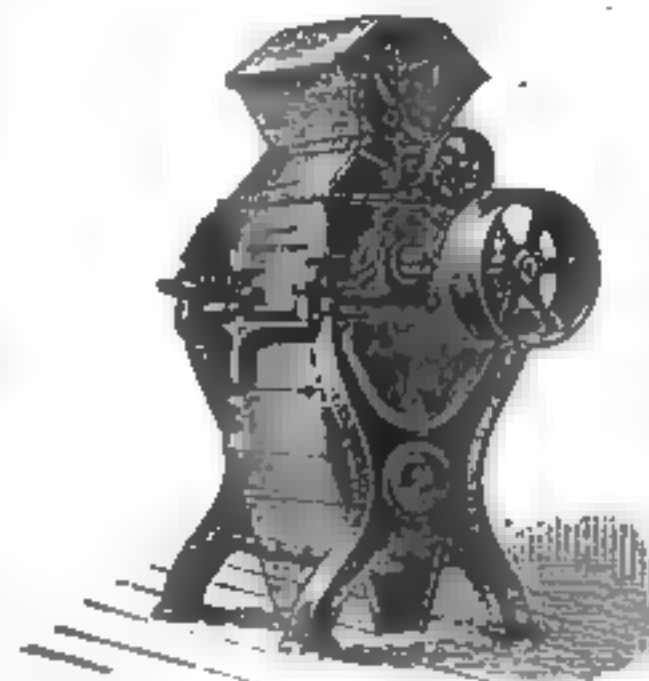
ONE, TWO, OR FOUR BREAKS IN A SINGLE FRAME

SIZES OF ROLLS 9x18 and 7x14 INCHES.

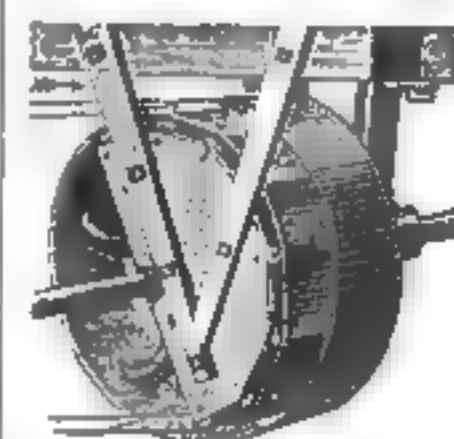
NO CROSS BELTS. NO FRICTION. NO LOSS OF POWER.

Reduction Rolls, Bolting Cloth, Purifiers, Middlings Mills and Bolting Chests. General Mill Furnishing Supplies.

W. H. BARBER & CO., SOLE MANUFACTURERS, ALLENTOWN PA.



The Wellington Belt Holder.



A NEW IDEA!

BETTER AND CHEAPER THAN LOOSE PULLEYS.

BETTER AND FAR CHEAPER THAN DEAD PULLEYS.

Our Customers Like It and Order More.

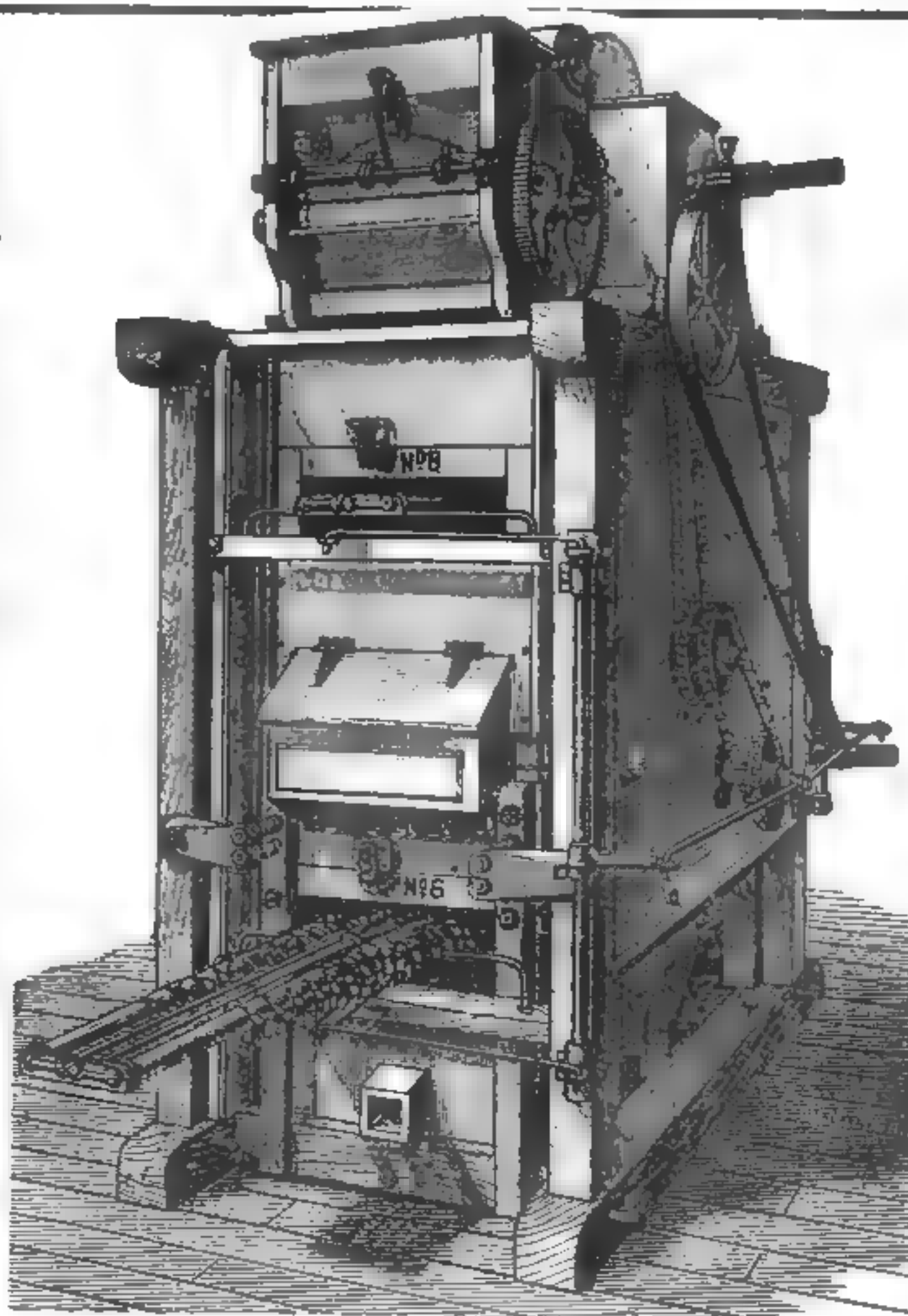
Please write for Circular to

W. R. SANTLEY & CO., WELLINGTON, O.

THE DOUBLE CURRENT PURIFIER

Has the Automatic Separating Feeder. It takes out the heavy specks between each number of cloth. It settles the heavy dust and lifts the light fuzz into the dust room. It has "Collins" Automatic Cloth Cleaner. Licensed under all conflicting patents. Descriptive circulars and prices on application. Mention this paper.

J. T. Walter, Sole Manufacturer, Easton, Pa.



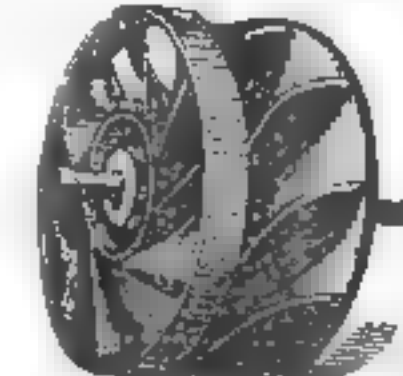
A tool for Cutting, Leveling and Polishing the Furrows and Face of Millstones.

Eight inches long, 2 1/2 inches wide, 1 1/2 inches thick. Received the highest and only Award given to Polishers at the Millers' Exhibition, Cincinnati, Ohio, June, 1880.

For facing down high places on the buhr, this tool has no equal, and can be done much better and in one-sixth the time than with the mill pick. It is much larger, cuts better, can be used on either face or furrow, can be used until the corundum is entirely worn out on one side and then turned on the other side. Has over four times the amount of corundum and when the corundum is worn out can be replaced in the handle at a small cost. Sent by express, \$5.50. Satisfaction guaranteed, or money refunded. Address

HORACE DEAL, Bucyrus, Ohio

DeLOACH WATER WHEELS



From 2-10 to 2,000 horse power. Simplest, most durable, best gate for holding the water, fully equal in percentage of power to any wheel made, and price places it in reach of all. Send for illustrated catalogue. A. A. DeLOACH & BRO., Manufacturers, also of Milling Machinery, Atlanta, Ga. Mention this paper.

THE INK
WITH WHICH THIS PAPER IS PRINTED
MADE BY THE
QUEEN CITY PRINTING INK CO.
CINCINNATI, O.



MILL SUPPLIES

Everything Used in a Mill of Every Kind Always on Hand.

Leather Cotton Rubber { BELTING, BOLTING CLOTH

ELEVATOR BUCKETS, BOLTS, MILL IRONS, &C.

Prices Close and Quality the Best.

The Case Mfg. Co., Columbus, Ohio.

ROLLS RE-GROUND

And Re-corrugated to order. Porcelain rolls re-dressed. Our Machinery for this purpose is very accurate. Can do work promptly.

Case Mfg. Co., Columbus, Ohio.



FOREIGN WHEATS.

THE year 1883-84 has not been a specially happy one for the milling fraternity of Germany, says a correspondent of *Die Muehle*. This was not so much due to a deficient harvest or a limited demand, or to the fact that America was flooding Germany with grain, but to the fact that the German crop, wheat as well as rye, was of a very poor milling quality. The constant rain during harvest time had caused a large part of the grain to sprout, while another part had been stored in a damp condition for fear that the wet weather would spoil it entirely.

As every mill is built for the production of certain quantities of flour, requiring a definite amount of help whether 10,000 or 7,000 lbs. of grain are ground, the disadvantage caused to the German miller by the depression of the prices of the damp German wheat on account of the competition by foreign dry wheats, was serious. There was no lack of grain in the country, but the dealers were unable to obtain an abundance of cheap cereals which they could sell at a large profit. So they first imported American wheat, which is but very little inferior to the German; then followed Russian varieties, some of which were good, while others were utterly useless for the German millers. As soon as the interest in these importations subsided, some smart people offered Egyptian wheat for prices which suggested the forced sale of spoiled articles. While the Russian wheat had many good qualities, the Egyptian exhibited almost as many bad ones, for in addition to an abundance of weeds, at least one eighth of it was worm-eaten and introduced a member of Egyptian flies and beetles into Germany. Numerous millers, attracted by the low price, tried a load, but even the cheapness was unable to create any kind of demand. Thirty years ago the same trick was tried and many of our millers remember that they themselves, or their fathers, were cheated at that time by a similar brand of wheat.

The millers were by that time wide awake, and the cheap exotic wheats had to take a round-about course in order to be played into the hands of the flour-producers. East and West Prussia have always been known for wheats of superior quality, and Danzig, Koenigsberg and other cities began to receive large invoices of East Indian wheats of poor quality and a strong spicy odor. These were then mixed with the home product and millers bought a good white wheat, according to sample which had lost its spicy odor, and none ever suspected that the good home product had been so fearfully adulterated. But their surprise was unlimited when the wheat arrived with its strong odor of a variety of spices. Many lawsuits originated in this manner between millers and grain-dealers, but whoever ground this wheat, obtained a dark flour of inferior quality. Advice is therefore given to all millers not to touch exotic wheats of any kind, and if purchasing, to take a guarantee that the wheat has not been mixed with Egyptian or Indian products.

TRANSFORMATION OF STARCH IN PLANTS.

From Prof. Sachs observations, published in a German paper, it appears that the starch formed in the leaves during the day may disappear completely during the night, and that the leaves shown be quite free from it the next morning. This he proved by cutting a leaf longitudinally in half on a fine sunny day, placing the one-half in boiling water

for about ten minutes, then in alcohol to remove chlorophyll, etc., and then laying the decolorized leaf in an alcoholic solution of iodine; the other half being similarly tested the next morning before sunrise. He has also confirmed the statement that the transformation of the starch into glucose and the transference of the latter by way of vascular bundles into the stems also goes on during daylight, but is less evident because more starch is formed than is abstracted. This fact has already been demonstrated by Moll, by exposing leaves to the sunlight in an atmosphere freed from carbonic acid by potassic hydrate. The average amount of starch produced per square meter is estimated by Sachs to be 20 to 25 grams per day, and the average rate of production at 1.648 grams per hour. Mr. Ward point out, in *Nature*, that several practical results follow from these experiments. Leaves used as fodder, hay, etc., will vary very much in nutritive value, according to the warmth and brightness, etc., of the weather, and the time of day when it is cut, and the same remark applies to the collection of tobacco, tea, etc., the former of which, in some countries, is habitually cropped in the morning. It may be added, also, that the knowledge thus arrived at may be turned to account in the collection of medicinal plants for the preparation of extracts.

SOCIETY OF REGULAR MILLERS OF IRELAND.

The annual meeting of the above Society was held in their offices, York street, Dublin, August 6, when there was a large attendance of delegates. The correspondence received was of an encouraging description, and included reports from the following counties: Antrim, Armagh, Down, Galway, Clare, Cork, Limerick, Tipperary, Kilkenny, King's, Queen's, Meath, Louth, Carlow, Wexford, Wicklow, and Kildare. Letters were also received from London and Birmingham.

The outgoing President proposed that the balance-sheet and report for the year ended 26th July be adopted. He dwelt on the great advance the Society was making throughout the country, malsters and operatives alike having recognized the great services it had rendered the trade since its inception. With reference to the financial portion of the report, he said that although the expenditure for the year just ended was high, £100 odd, their bank account was steadily increasing, £50 having been added during the year.

Mr. Doyle seconded the proposition, which was carried.

Mr. L. Murphy, the secretary, then proposed the following: "That we, the Regular Millers of the Ireland Trade Society, believing that the present depressed state of Irish trade is largely due to the blighting effects of England's free trade policy, and believing as we do that the English Parliament will not return to a policy of protection, we, as representing an industry on which thousands are depending for bread, desire to place on record our opinion that on the fostering care of an Irish Parliament alone depends the material prosperity of our country."

NOTES.

Lightning destroyed the so-called "Big mill" at Baerwalde, Germany on July 9.

Mills at Thienbuetel and Bunsch in Holstein were struck by lightning on July 24 and reduced to ashes.

In Yucatan and Southern Mexico hundreds of square miles of the country are covered with locusts, and other crops are utterly destroyed. It is said that thousands of families dependent upon small crops will have to be supported by the Government for the next six months.

There can be no doubt that Tonquin is one of the finest grain producing countries in the east, far surpassing anything to be seen in the southern

provinces of China, with the exception of the Canton river delta, the area of which is however, much smaller, says an English exchange. Two crops can be raised in the year almost everywhere, and in some parts three is no rarity. The sugar cane and mulberry trees which are so abundant in the Mardin district are not so much seen between Haiphong and Hanoi. Add to this that the climate is one which for four or five months in the year Europeans find pleasant, and it will be easily understood that the French are warranted in going to great expense and some risk in conquering the country for themselves.

There will be but a small amount of Indian wheat sold in the European markets if the American wheats are offered in such large quantities and at such low figures, says Pappenheim's *Mueller Zeitung*. The European wheat producers have really profited by the collapse of the speculative prices of America, but by far the greatest advantage has accrued to India, which was induced thereby to devote more energy and territory to the cultivation of wheat. Of course the prevailing low prices have ruined quite a number of Indian wheat producers and merchants as well, but the collapse of the "American wheat speculation" by the abundant harvests of Europe has more than counterbalanced the evil effects which it exercised on the markets during the past winter.

It seems that the German tariff system becomes unbearable even to some of the most pronounced protectionists, says the *Austrian Trades Journal*. So we find a report from the Board of Trade at Laubau, where men, well known as radical protectionists, oppose at present any proposed increased tariff on linen yarns and grains. Speaking about the latter, the report said that the flour industry had to carry a larger share of last year's calamities, due to the introduction of high grain and flour tariffs, because the home demand was not sufficient to counterbalance the lost export markets. The consequence was a constant offer to sell and a decline of prices. If we are now forced to admit that the tariff has offered no advantage to the miller, we are also unable to see its beneficial work for the agriculturist. To discontinue the tariff at present would be equally useless, because the lost foreign markets cannot be regained at our pleasure. The "retrograde advance" in Germany must come to an end at some time.

At present there are only one hundred and fifty-five miles of completed railway in Japan. Another line, now in course of construction, will be eighty miles in extent. The slower means of travel in Japan are cheap, and the necessity for quick passage from place to place is rarely felt in the quiet empire.

Plans have been prepared for a ship canal across Ireland from Dublin to Galway—a distance of 127 miles. Its estimated cost for ships of various sizes is as follows: For ships of 1,500 tons, \$40,000,000; for ships of 2,500 tons, \$60,000,000; for ships of 5,000 tons and upward, \$100,000,000. The plans have been prepared by a London engineer assisted by Captain Eads.

The canal through the isthmus of Corinth is progressing at a very satisfactory pace. A new town has been built, for the accommodation of the workmen, on the coast of the Gulf of Aegina, a railway has been constructed, and four locomotives pull the freight and materials, here and there, as wanted. The soil is easily excavated, and the calculations of time and cost can be based on a scale of exact measurement. The excavation is being chiefly done by the aid of special machinery, devised and built in France for the purpose. De Lesseps is well satisfied with the progress being made, and the work will no doubt be finished according to his announcement.

A DAKOTA WHEAT STORY.

North of the British possessions and east of Dakota, matters of an agricultural nature are in excellent form. In both districts the yield will be more than an average one. For miles and miles in Dakota can be seen, stretching beyond the range of human vision, illimitable fields of nodding grain of the finest Red River quality. So great is the expected harvest, that oats sell from 25 to 30 cents per bushel, and wheat from 40 to 80 cents. One practical farmer of Dakota, in the valley west of the Missouri river, interested the writer by a little statement which he assures me is true in every particular. In 1881, he says, he planted, as a matter of experiment, a single grain of wheat in one of his oat fields. From it that season grew twenty-two tall stalks, each bearing a full head of the *Triticum hibernum*, red quality. Eight hundred and sixty grains were taken from this head, 760 of which were planted next year, yielding one-fifth of a bushel of as fine

wheat as was ever seen. This was planted again the next year, and produced no less than seventeen bushels, or 1,020 pounds from a single grain in the space of three years. This is rather a good showing. In Manitoba, or rather along the entire line of the Canadian Pacific railroad, excellent arrangements are being made for the marketing of the crops of grain. The weather has been fine, and if it continues so, in a few days the harvesting of wheat will be fairly begun. The people of Winnipeg seem to be having some trouble with their great transcontinental railroad, and there is a rumor afloat that the railway company intends to give Winnipeg the go-by, and establish at Selkirk the center of their business.

The road appears to be the friend of the farmers, although it has never gotten along with the merchants very well. A recent letter from Winnipeg says: "The Canadian Pacific authorities have made arrangements to send an inspector up the line of their road, who will have his headquarters at Port Arthur. His business will be to look after the agricultural interests of the country bordering on the road, and the samples of grain prepared by him will be sent to every station agent along the main line and branches, and wheat brought in by farmers will be graded by that standard. The object of this move is to protect the settler against the buyer. If the former is dissatisfied with the grading of the wheat made by the latter, his remedy is to call upon the agent to produce the type sample, and both must abide by it. To further protect the farmer, telegraphic bulletins giving current prices in the principal markets of Canada and the United States will be posted daily at every station. The future looks very bright for agricultural people in this section, and there is every prospect of a brisk and lively competition among buyers this fall. Where there was one buyer last year, there are six or more this year, and any attempt on their part to form a pool, will be surely defeated by the protection which the railroad company will certainly give the farmers."

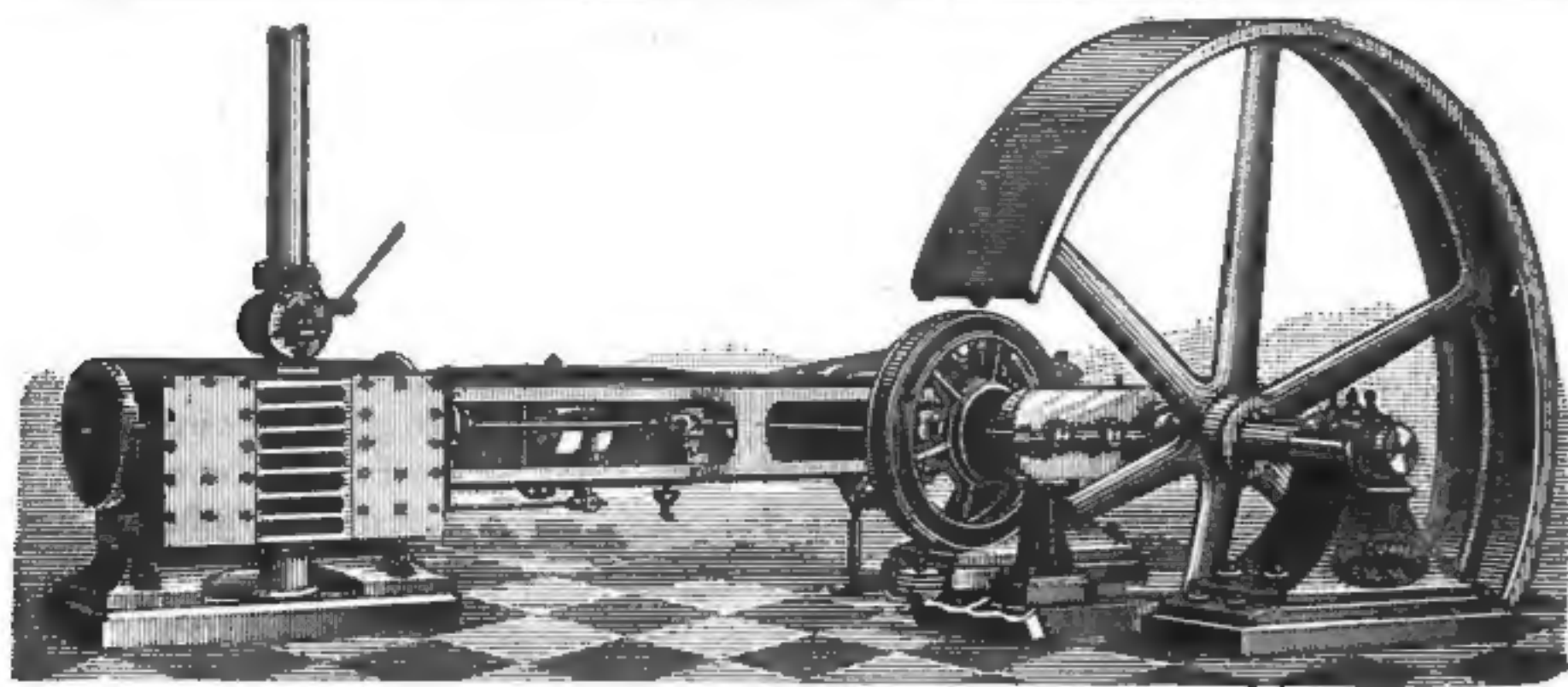
The Canadian Pacific is putting into their huge elevators at Port Arthur, the most improved machinery that money can buy, and the great belt of grain country lying between the two great northern transcontinental lines, can find an easy outlet to market by either the Northern Pacific or Canadian Pacific railways.

Word comes from the eastern portion of the Canadian possessions, the vicinity of Ottawa, that a small destructive insect has put in an appearance on several of the corn farms, eating out the stalk and damaging the crop. Several attempts have been made to eradicate it, but so far, all have been unsuccessful.

South of Manitoba are the grain fields of Dakota and Montana. Of the former, so much is already known that no recounting is needed here. Eastern readers are almost as well acquainted with the famous Red River Valley and its products as they are of their own states. But of Montana, its far-away position and recent settlement makes it a comparatively new country, of which very little is ever heard outside of the Territory. Now, the agricultural and grazing sections of Montana are separated by the lofty natural divide of the Rocky Mountains. To the east lie the great prairies, or North American pampas, while to the west are the fertile foot-hills and valleys of the giant Rockies.

The Gallatin Valley, situated in the western half, is the most productive in the territory for the raising of cereals, and the crops in this section will be more than average ones. Over half the grain in this valley was destroyed last year by an early frost, and that is about the only fear the farmers have of the present season's harvesting. Otherwise everything looks fairly promising. The acreage of wheat will be a little ahead of last year, and the oats probably light, owing to the unfortunate drouth of June.

There has been considerable destruction of growing crops in the northern part of Montana, and also throughout the Missouri River Valley, where the farmers and ranchmen say hail storms have been frequent of late. It has, however, been of little consequence, as the hailstones were generally small in size, too small to do any serious damage. Helena and Butte are the natural markets for the farm products of Western Montana, and what is not consumed at home goes out of the country via the Northern Pacific railroad. Some farmers say they can find no profitable outside market for their produce, owing to the high tariff rate established by the Northern Pacific Company on such freight. They also say that the railroad company seem to be carrying on a "plan of crushing, instead of fostering, farming interests." Other farmers, just as good authority on such matters, assert that the Northern Pacific officials have always been willing and anxious to grant to anybody and everybody as favorable terms as they could consistently give.



THE CUMMER AUTOMATIC ENGINE

IS UNEQUALED IN
Ease of Operation, Effective Duty,
Close Regulation,
In Quick Starting up to Speed,
Uniformity of Speed & Economy of Fuel.

Awarded the Gold Medal at the Cincinnati Exposition, and a special prize for extraordinary merit; also the highest medal at Louisville for the best automatic engine.

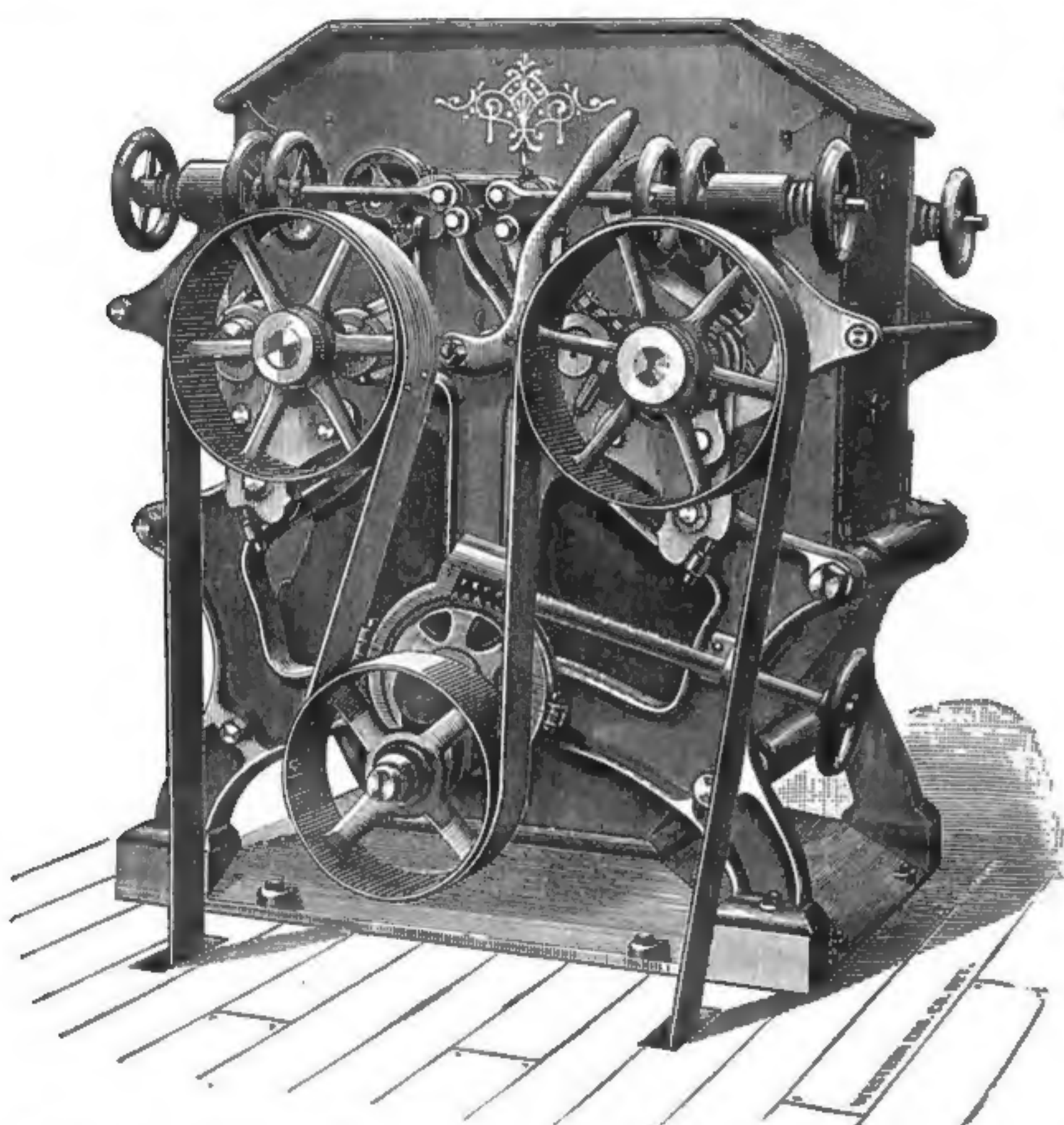
IT IS THE BEST ENGINE MADE.

These are points of importance with every miller and manufacturer who expects prompt, even duty of an engine. Printed matter, cuts, and information promptly furnished on application. Send for our 150 page Illustrated Catalogue.

THE CUMMER ENGINE CO., CLEVELAND, O.

PORTABLE FORGES Empire Portable Forge Co.
Cohoes, N. Y.
Send for Catalogue.

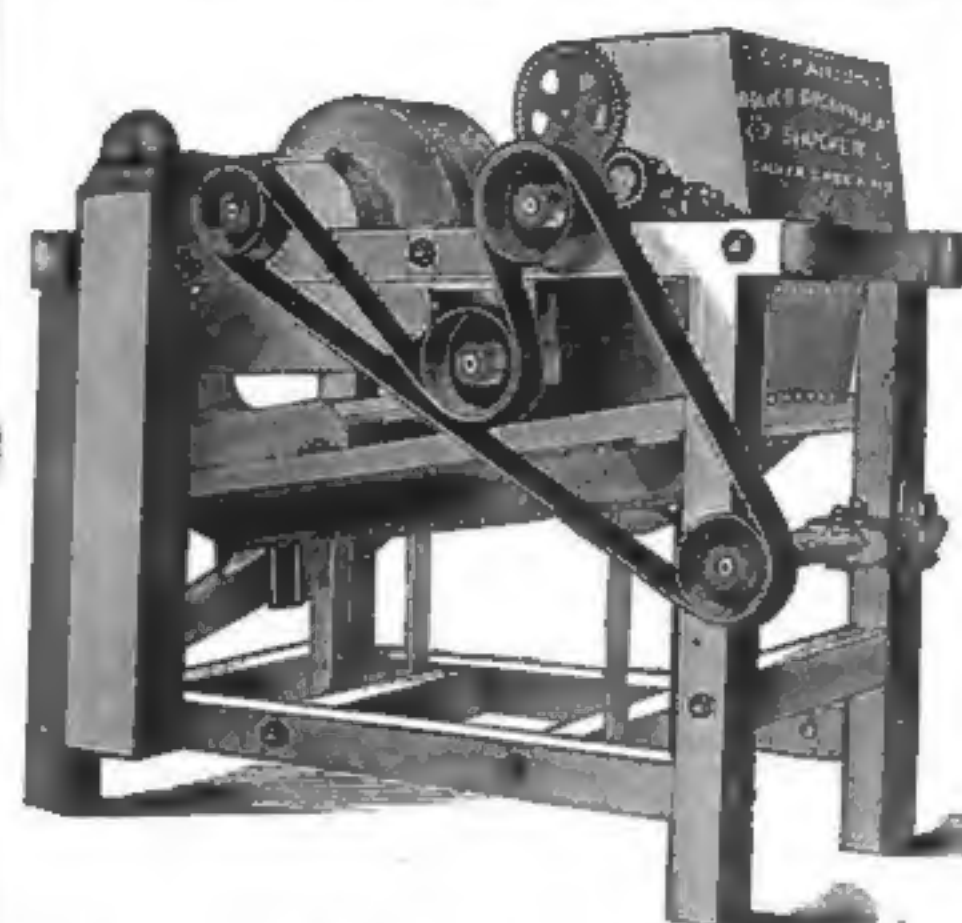
The MILLER ROLLER MILL



Has no superior. Universal Tightener, Automatic Feed, Tight Base, Noiseless, with Non-Cutting Corrugations. We also manufacture the Rider Wheat Break, which has no equal for 1st, 2d and 3d Breaks. Send for Reference and Circulars of our Machines.

THE MILLER CO., CANTON, O.

BUCKWHEAT MILLERS



WILL FIND IT TO THEIR DECIDED
ADVANTAGE TO INVESTIGATE THE
CONCEDED MERITS OF

CRANSON'S SILVER CREEK
ROLLER BUCKWHEAT SHUCKER

ITS SUCCESS IS BEYOND QUESTION.
ITS VALUE HAS BEEN DEMONSTRATED
IN MORE THAN 800 CASES. IT
IS THE ONLY PERFECT BUCKWHEAT
SHUCKER IN THE WORLD.

G. S. CRANSON & SON, PROPRIETORS SILVER CREEK, N. Y.

HEAD LININGS AND COILED BARREL HOOPS.

Our Celebrated Patent
Head Linings are straight
Rounded on their upper edge
nail on barrel. They will
freely through the square
are packed. We can furnish
from twelve to seventy-two
GOOD Head Lining can



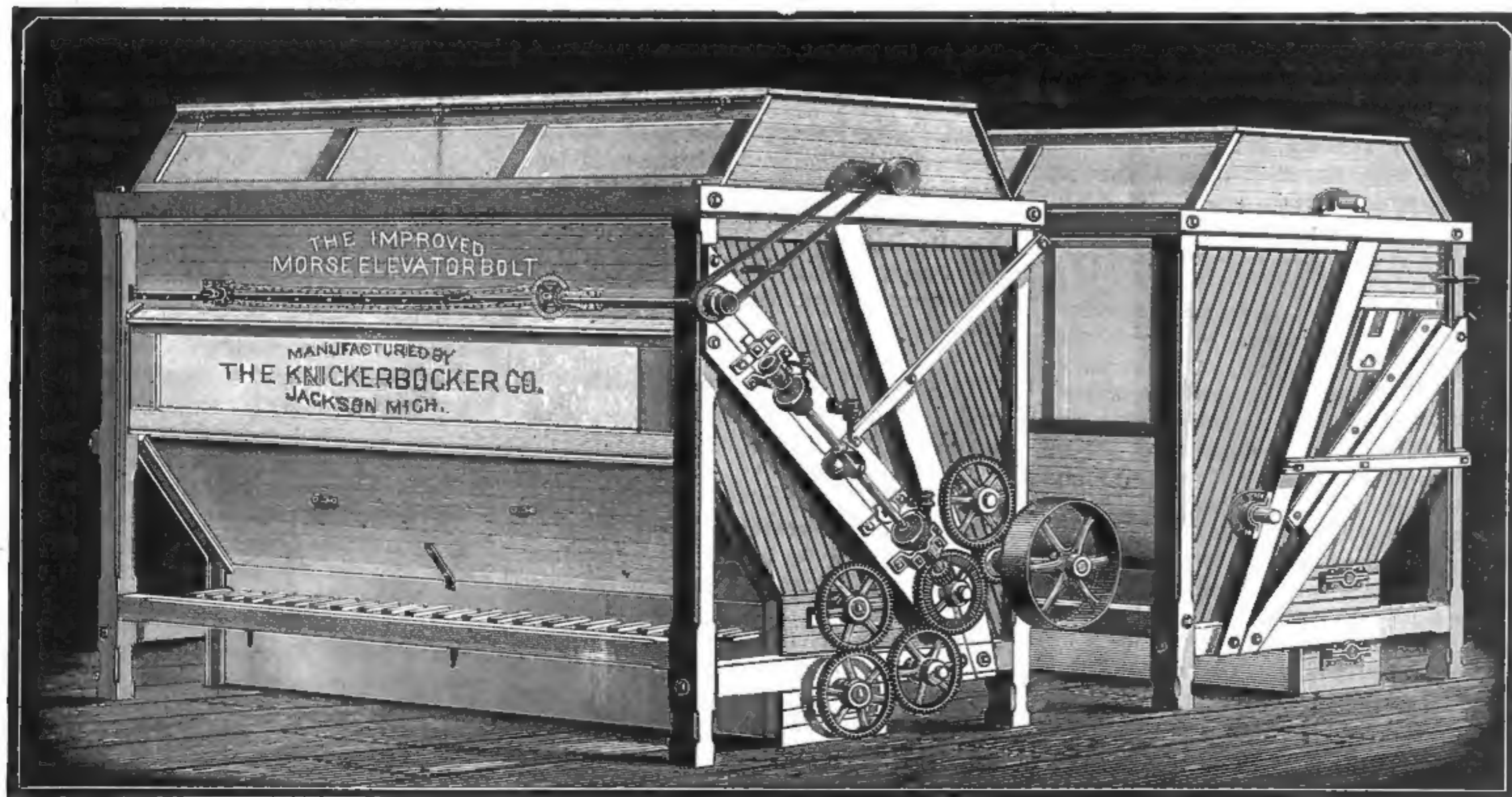
Round Edge Bent Barrel
grained from end to end,
and crimped or bent ready to
not mold, as the air circulates
bundles of 250 in which they
them any desired length,
inches, and as cheap as any
be sold.

CAN FILL ALL ORDERS AT SIGHT.

REED & SILL COOPERAGE CO.,

DETROIT, MICHIGAN.

The Improved Morse Elevator Bolt.

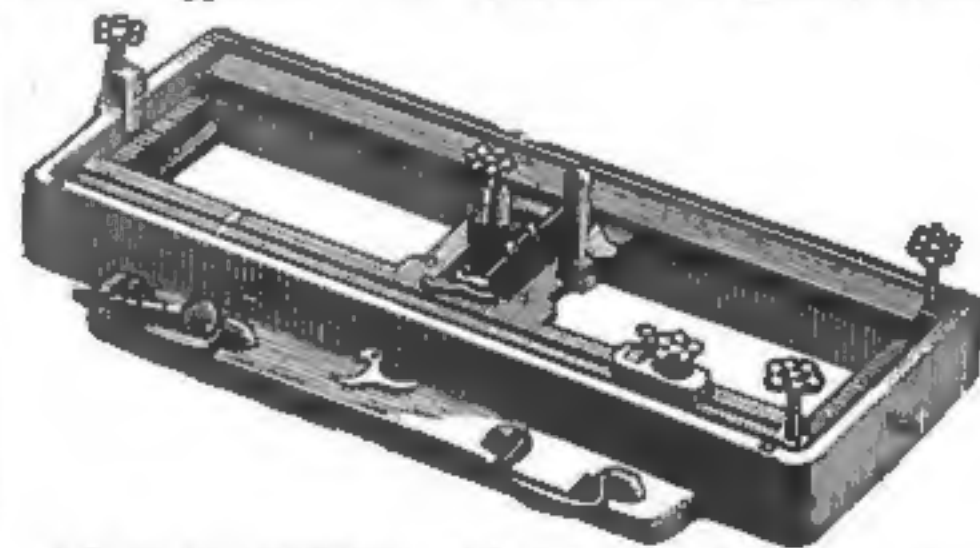


DEMONSTRATED IN OVER 100 MILLS TO BE THE BEST BOLTING DEVICE KNOWN.

THE KNICKERBOCKER CO., JACKSON, MICH.

AUTOMATIC ROD FEED!

A NEW INVENTION.
NO EQUAL IN MANY RESPECTS.



Adapted to all kinds of dressing on right or left hand burrs; convenient to place machine over spindles, are ample long and wide. All adjustments and regulations are quick and easily made without the use of any tool. By the use of this rod feed deeper facings can be done by once going over the face, as the feed can be set to over 1,000 cuts per inch, and is instantly regulated as desired, to suit the depth of cut, in other words to cut fine or coarse when in motion, making it complete, and a great saving of time in this respect, as well as others. Forease of operation and adjustment it is far superior, also for merit and simplicity. All is fully guaranteed to be as represented. Machines have now been in use for four years, and not a single call has been made for any repairs. Also a new Improved Patent Diamond Holder, which is specially adapted to hold any shaped diamond; convenient to set a diamond. Facing can be done to good advantage with two diamonds at one time. The carriage can be taken out at end of machine and replaced in a half moment's time, all is complete. A revolution in several respects. Machines will be forwarded on their own merit, by parties giving good references. Send for circulars giving full description.

C. A. BERTSCH,
Sole Manufacturer, Cambridge City, Ind.

HAS BEEN AWARDED
FIRST AND ONLY PREMIUM
AT THE
Millers' International Exhibition.



Office of THE MILLING WORLD.
Buffalo, N. Y., August 27, 1884.

Wheat is cheap, deliveries are very free from farmers, demand is light, and the harvest news continues favorable from every quarter save some sections of Illinois, where the weather has been against the corn, but the damage from this cause is probably exaggerated. The statements regarding the British corps are important. An authority in the matter, Mr. Henry F. Moore, sums up as follows: "The prospect for the English farmer is to-day brighter than during any one of the past seven years. The yield of wheat is estimated at about 11,000,000 quarters, leaving us dependent on foreign supply for only 13,000,000 quarters—a smaller quantity than for years past. So far as markets are concerned, the coming year bids fair to see them glutted with wheat, while even lower prices may be expected."

We don't quite agree with the last sentence. The markets will not in all probability be glutted. There may be temporary embarrassment in moving the first offerings, but it is altogether likely that within the ensuing six weeks a material curtailment in the offerings will be observed. We do not anticipate that wheat values will go much below present rulings, nor, on the other hand, do we discover any cause which will immediately act to advance quotations, except spasmodically. The *Commercial Bulletin* of this date says:

"The silence of a Quaker meeting would be a tumult as compared with the unbroken stillness that for a considerable part of the session has reigned supreme in the grain department. Long intervals have passed without outside orders, and the locals have been tired of inter-trading for doubtful fractions. There has been little or no safe new material to work on. The cable advices are as mournful as ever. But a tolerably good offset is found in the fair outward movement from the seaboard, while the interior movement is somewhat lighter and ocean freights are low enough to foster free clearances, with reasonably steady markets on both sides of the water. Ocean grain freights are lower than they were a month ago by 5c to London and 4c to Liverpool. There has been a fair demand for winter wheat at a decline of 1c and a moderate business at a decline of 1/2c, at which the market closes dull. Spring wheat is firmly held and quiet; buyers won't pay the prices. Wheat options opened at last night's figures and then sold off 1/2c to 3/4c, but the market firmed up subsequently, on the Chicago estimate of 120,000 bushels decrease in the visible supply. This was the only feature to account for the rise of 1c to 1 1/2c that took place. The market closed at the best on everything."

"There is a rumor that Russia and England are disposed to take sides with China in the present controversy, but this has had but little, if anything, to do with the advance in prices here. There has been some covering on lighter receipts at St. Louis, and reports from Kansas that receipts would be likely to fall off, with farmers not willing to sell at present prices."

There has been a pressure of winter wheat flour for sale, and where the brands have had no established reputation to help sell them, they have had to go for less than intrinsic value; in such obscure brands there has been a good deal of irregularity, and probably better purchases have been made to-day than were made yesterday, while the distinguished stencils have been reluctantly yielding a little, although no actual decline can be mentioned. Springs on the other hand have sold comparatively well, these being not plenty. Rye flour is selling to arrive at \$4.50 if the grade is fancy. Corn goods are quiet, and a little easier. Bag meal is dull. Mill feed is moderately active, closing weak in tone.

BUFFALO WHEAT MARKET.

Buffalo, Aug. 26, 1884.

The wheat market last week opened dull and prices declined 2 to 3c. Friday and Saturday large sales were made to our local millers at 90c for No. 1 hard spring, 85c for No. 1 regular, and all good grades of red winter were in brisk demand. Our millers now hold about all the good Northern Pacific wheat here, and prices have advanced 5c.

Small lots of No. 1 hard offered at 95c, though we learn that car loads sold this morning at 94c. No. 1 regular held at 90c. New No. 1 white offered at 87c. No. 2 old on market. No. 2 red 85c. Longberry 87c. as per sample. Corn in good demand for car loads and prices steady; No. 2, 56 1/2c, No. 3, 54c. Sample lots 51 to 53c. Oats new on track, 33 to 34c. Other grain nominal.

JAMES S. MCGOWAN & SON.

FOREIGN EXCHANGE.

Foreign Exchange was firm, owing to the almost entire absence of commercial bills and a fair demand from importers. Posted rates were 4.84 and 4.86. Actual rates were as follows: Sixty days', 4.83 to 4.83 1/2; demand, 4.85 to 4.85 1/2; cables, 4.85 1/2 to 4.85 3/4, and commercial bills 4.81 1/2 to 4.82. Continental exchange very quiet, francs, 5.21 1/2 to 5.21 3/4 and 5.19 3/4 to 5.18 3/4; reichsmarks, 94 3/4 to 94 1/2 and 94 1/2 to 95; guilders, 39 1/4 and 40 1/4. The closing posted rates were as follows:

| | 60 days. | 90 days. |
|--------------------------|----------|----------|
| London..... | 4 85 | 4 86 |
| Paris francs..... | 5 20 | 5 17 1/2 |
| Geneva..... | 5 19 1/4 | 5 18 1/2 |
| Berlin, reichsmarks..... | 94 1/2 | 94 3/4 |
| Amsterdam, guilders..... | 40 1/4 | 40 1/2 |

BUFFALO MARKETS.

FLOUR—City ground clear Duluth spring \$4.75 to \$5.25; straight Duluth spring, \$5.50 to \$5.75; amber, \$5.25 to \$5.50; white winter, \$5.25 to \$5.50; new process, \$5.25 to \$5.50; Graham flour, \$4.50 to \$5.25. Western straight Minnesota bakers, \$5.25 to \$5.50; clear do, \$4.75 to \$5.25; white winter, \$5.00 to \$5.25; new process, \$5.25 to \$5.75; low grade flour, \$4.50 to \$4.00. OATMEAL—Ingersoll \$5.75; Ban-nerman's \$6.00; Akron \$6.25. CORNMEAL—Market steady, with a fair demand. Coarse, \$1.15; fine, \$1.25 per cwt. RYE FLOUR—In fair demand at \$4.00 to \$4.25. BUCKWHEAT FLOUR—Demand fair at \$3.50 per cwt. WHEAT—Firm. Sale 20,000 bu No. 1 hard Northern Pacific Monday afternoon at 92c September, and Wednesday 5,000 bu do at 93c October, 4,000 bu No. 1 white at 87c on track; No. 1 hard Northern Pacific offered at 94 1/2c to arrive; at the Call Board 95c asked 95c bid cash, 94 1/2c asked 92c bid to arrive, 92 1/2c asked 91c bid September, 90c asked 89c bid November, 92c asked 91c bid year. CORN—Unsettled. Sale two car-loads sample at 55c; at tee Call Board 57c asked 56c bid to arrive, 57c asked 55 1/2c bid August, 56 1/2c asked 55 1/2c bid September, 56 1/2c asked October, 54c asked November. OATS—New No. 2 white nominal at 38 1/2c on track; mixed Western 30 to 31c. BARLEY—Season over; market nominal. RYE—Last sale of No. 2 Western was made at 68c. New State nominal at 60c.

STATUS OF THE WHEAT MARKET.

In a recent issue the *Chicago Tribune*, editorially said: The "shorts" or "bears" are having their own way about it entirely. With the exception of an occasional and spasmodic recovery, the course of prices seems to be persistently downward, notwithstanding wheat is lower than it has been since 1870. In fact, it is much lower, relatively, than it was at that time, because freights were higher in that year, and the excess of transportation charges fell upon the producers and Western dealers. Nevertheless, the "bears" are apparently of the opinion that they may continue to sell for delivery at still lower prices in the future, and they would go on at the same rate until they would agree to deliver wheat for nothing if something did not intervene to check their mad career. How long they will continue this year cannot be foretold with any accuracy, but past experience warrants the belief that they will be brought up with a sharp turn at some day not very far distant, and that some of them will think it would have been money in their pockets if they had never been born.

Regarded in the light of reason, and without taking into account any speculative manipulations of the market, the wheat prospects are encouraging, but conservative. The crop will in all human probability turn out to be abundant, and a considerable movement of the grain may be anticipated early in the season. The wheat growers of the Northwest have not extensive facilities for storing their product and withholding it from the market, and their work on the new crop begins so early in the spring that it is desirable to get the old crop pretty well out of the way before going to work at the new. There are also indications that, while the farmers are in comfortable circumstances, they are not so plentifully supplied with money as to make a stubborn fight against low prices. It may be reasonably expected, therefore, that wheat at anything like fair prices will be freely shipped to Chicago this coming fall. Such a tendency is healthy and calculated to be of benefit to the whole country. But it does not warrant an abnormal depression in prices, which, indeed, might defeat the ease of movement which is promised. If the short sellers shall continue, under the delusion that there is no limit to the downward tendency under vigorous hammering

of the market, a reaction will certainly set in which will go to the other extreme, and not only fleece them but disturb the whole country and arrest the foreign demand. They are sowing the wind and preparing to reap the whirlwind. The sensible men among them will not run into the danger that faces them and give some combination the opportunity to squeeze them. It will be a great pity if the wheat prospects shall not be permitted to work out their natural course, and those who interfere with it will be pitiable objects if they don't let it alone.

AS SEEN BY ENGLISH EYES.

In its market issue for Aug. 11, the *Miller*, London, says: A bulk of new English wheat is in the front of the market. Weight heavy; condition, good; quality of flour-making fine, although the bran portion may be more than usual, from the character of the season. Almost every exchange of any importance has had samples during the past week, and as it is the modern practice of farmers to thresh out in the fields—when they can—the extraordinary brilliancy of recent weather has favored the rapid conversion of growing corn into marketable grain. Low prices do not stop deliveries, and at present new red wheat is selling at 35s. to 38s. per qr. Even fine white samples are to be had at 44s., and from this point, down to 34s., it seems likely the first business of the campaign will be transacted. Every miller in town and country knows the value of good English wheat at these terms, and a general run on home-grown wheat would appear probable. Foreign sorts must, therefore, farther recede in favor, especially California and Indian, whilst Russian sorts are now on offer at 30s. to 35s., even fine Saxonska being obtainable at 35s. to 38s. per qr. Australian, at 40s. to 41s., is relatively scarce, and competes with English white for the miller's custom. The good weather that has made the English harvest what it is has also benefitted France, Germany, and other August-harvest countries; indeed it has set its seal on plenty. However, buyers should remember prices are now on the very low level of extreme plenty, and further movement downwards would seem unlikely. All the changes warranted are changes that re-arrange and put in relative order the various samples of wheat. In this shake-up of the market new English wheat at the rates now making should come out well and challenge comparison. Old stocks of wheat and flour are in very moderate compass, and it is doubtful if America will rush her new crop into the European market when spring wheat in New York is under 30s. per 480 lbs. Thus if buyers act slowly, so also sellers are likely to act with reserve, and the market will be left unincumbered. Farmers supply wheat over such large local areas that they seldom over-weight the market.

Besides, the sun does not always shine in England; and a break in the present hot and fine weather period cannot fail to make wheat buyers reflect on the present chances offered them. A good beginning has been made, since the beginning is on exceedingly low terms, and ordinary demand and ordinary cheapness might well be maintained, even if English wheat should now moderately advance in price. Flour ranges from 26s. to 36s. per sack, with higher and lower terms for special quantities. Potatoes promise to become a good crop, and thus cheap food for the people seems assured from the land productions of 1884.

EUROPEAN CROP NOTES.

In France the very fine and hot weather of the week ending Aug. 15, had been most favorable for the maturation of the cereal crops in the Northern Departments and for the prosecution of harvest work. A week of such weather would suffice to terminate the ingathering of the wheat and oats, and to assure, moreover, the good quality of the grain. The winter barley appears to give satisfaction in the Northern provinces, the quality being excellent. A good average wheat crop is now reckoned upon. At the Paris Weekly Exchange the attendance of farmers was somewhat large, and offers of wheat rather more plentiful. In consequence of the fall in quotations in the provincial markets, millers showed less disposition to operate, and it was impossible to effect sales except at a fresh concession of 1 1/2c. to 3/4c. per 100 kilos.

In Holland harvesting is progressing in a most successful manner, the present dry weather singularly favoring the carrying of the rye. Spring corn, too, gives entire satisfaction.

FIRST AND ONLY PREMIUM
OVER ALL COMPETITORS!
PURCHASE ONLY
FROM RELIABLE DEALERS.

In Germany the weather during the week ending Aug. 15, had been uninterruptedly fine and hot, and harvesting had made rapid progress. Accounts from the provinces are uniformly favorable, and it seems that the rye crop this year will not be under an average. Reports of the wheat crop are similarly encouraging. At Berlin, wheat on the spot had met but few purchasers, and stocks during the past month had rather materially increased. Term was very dull, under lower American advices. There had as yet been exhibited no reliable samples of new Saale barley, as farmers, being so busy in cutting and carrying their grain, had no time for thrashing, and offers cannot come forward under a week or two. Oats were firmly held.

NOTES.

The Case Mfg. Co., Columbus, O., have an order from Jacob Weissheimer, Clintonville, O., for four additional pairs of rolls and a three-reel scalping chest.

A large flour dealer in St. Louis, last Friday received a cable offering 20s per sack (280 lbs.) for 500 sacks of his patent flour, equal to \$4.80 per barrel, delivered in London. As he is selling freely at home at \$5, and the freight charges to London foot up 1.07 per barrel, his disgust can be imagined.

The *Locomotive* comments upon the new harvest as follows: "The wheat crop of the United States will be this year, according to careful estimates, about five hundred and four millions (504,000,000) of bushels. This is equal to six hundred and twenty-seven million two hundred and two thousand eight hundred cubic feet (627,202,800); or enough to fill a box 855 feet 11 inches long, 855 feet 11 inches wide, and 855 feet 11 inches deep. This would cover a piece of ground one mile square to a depth of 22 1/2 feet; or a piece 4 1/2 miles square to a depth of one foot. And yet, judging from the size of the ordinary hotel biscuit, we would never have suspected that so much wheat was raised in this country."

St. Louis wheat grades are notoriously high, and the commission men and grain dealers of that city have endeavored to have them somewhat modified, but the milling interest has resolutely opposed any change. At a recent meeting of the Merchants' Exchange directors the wheat inspection committee submitted types of samples for 1884, and recommended them for adoption, the directory complying by accepting the standards fixed upon by the committee. The grades adopted are about the same as those of last year, and will probably allow the inspectors to pass more wheat as No. 2 than they have been doing of late. As a guide for inspectors a type sample, giving the minimum below which the inspection could not go in grading wheat No. 2, has been made up by the committee. The names of "Nos. 2 and 3 Turkey" were changed to "Nos 2 and 3 hard." Standard samples of flour as recommended by the flour inspection committee were accepted by the board.

Samples of Egyptian, Indian and South American wheat were recently exhibited on 'change at Chicago. The samples of Behera (Egyptian) wheat, one washed for milling and the other just as imported, are both of low grade, and sell at 55 sd per 100 pounds in the Liverpool market. This wheat when mixed with others is said to make good flour, but is never used alone for milling. Bombay No. 1 is a large, full rather pale-colored wheat, much the same as Chicago No. 2 spring, and bringing about the same price in the British market. The average River Platte, raised in the Argentine Republic, on the River de la Plata, is a small, bright wheat, somewhat resembling rye in size and color. It makes good strong flour, and sells one and one-half cents over the price of Chicago No. 2 at Liverpool. There was also shown a sample of Poti corn, raised in the Black Sea region, which is almost equal to that grown in America, and fetches much the same price. The various samples were regarded with considerable interest, as showing what America has to compete with in the British markets.

JAMES S. MCGOWAN & SON,
SHIPPING AND COMMISSION MERCHANTS.

Choice Milling Wheats a Specialty
Room 60 Board of Trade Building.
BUFFALO, N. Y.

No Charge for Inspection.

NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Builders from the Raw Material of

ROLLER MILLS, CENTRIFUGAL REELS, FLOUR BOLTS.

WE ARE THE SOLE OWNERS FOR THE UNITED STATES OF ALL THE PATENTS UPON THIS ROLLER MILL.

This Is the Only Roller Mill Made Having All the Essentials Needed In Successful Milling.

300 BARREL MILL IN MISSOURI.

Read what an Old Miller who has Thirty-Four Pairs of these Rolls in Constant Use, Says:

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen: In regard to the workings of our new mill erected by you, will say it is working fully up to and beyond our expectations. Our average work is fully 33 per cent. over your guarantee. Since starting our mill last July we have had no complaint of our flour from any market where sold. It gives universal satisfaction, and we have it scattered on the trade from Chicago to Galveston, Texas. Our yields are all that are attainable. We have tested it on both Spring and Winter wheats with satisfactory results on both varieties. Since the mill was turned over to us we have not changed a spout or a foot of cloth, nor have we found it required to make any changes. We have run as long as six days and nights without shutting steam off the engine, not having a "choke" or a belt to come off. The mill is entirely satisfactory to us, and for a fine job of workmanship, milling skill and perfection of system, we doubt if it is surpassed in the United States to-day. It is certainly a grand monument to the ability and skill of Col. C. A. Winn, your Milling Engineer and Designer. You may point to this mill with pride and say to competitors, "You may try to equal, but you will never beat it." Wishing you the success that honorable dealing deserves, I am,

OFFICE OF DAVIS & FAUCETT MILLING CO.,
ST. JOSEPH, MO., Nov. 28th, 1883.

Yours, etc.,
R. H. FAUCETT, Pres

300 BARREL MILL IN ILLINOIS.

MESSRS. NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gents: We started up our mill in June last year, and it gives us pleasure to say that your Roller Mills are doing splendid work and give us no trouble. Your milling program required no changes, and concerning yields, we get all the flour from the offals, and we sell our best grades in the principal markets of the United States at the highest prices offered for any flour. All the machinery made by you is first-class, and we would not know where to purchase as good.

OFFICE OF DAVID SUPPGER & CO.,
HIGHLAND, ILL., Jan. 10, 1884.

Yours respectfully,
DAVID SUPPGER & CO.

123 BARREL MILL IN INDIANA.

NORDYKE & MARMON CO., INDIANAPOLIS, IND.

Gentlemen: The 123 barrel All Roller mill you built us has been running all summer, and does its work perfectly. Before contracting with you for this machinery we visited many Roller Mills throughout the West and Northwest, built by the different leading mill-furnishers, and from all we could see, those built by you seemed to be giving the best satisfaction, and this is why we bought our machinery of you. Our mill comes fully up to your guarantees, and the capacity runs over your guarantees. The bran and offal is practically free from flour, and our patent and bakers' flour compares favorably with any we have seen elsewhere. I don't think anyone can beat us. Your Roller Machines are the best we have seen; they run cool, and the interior does not sweat, and cause doughing of the flour. Judging from our success, we would recommend other millers to place their orders with you.

LAPEL, MADISON COUNTY, IND., Jan. 10, 1884.

Yours truly,
J. T. FORD.

Letters on file in our office from a large number of small roller millers giving as favorable reports as above. A portion will be published as occasion demands.

SPECIAL MILLING DEPARTMENT!

Mill Builders & Contractors--Guarantee Results

Motive Power and Entire Equipment of a Modern Mill Furnished under one Contract.

Toledo Mill Picks and Stone Tool Mfg. Co.

Manufacturer and Dresser of
MILL PICKS.

Made of the very best double-refined English cast steel. All work guaranteed. For terms and warranty, address
GEO. W. HEARTLEY, No. 297 St. Clair Street,
Toledo, O. Send for Circular.

N. B.—All Mill Picks ground and ready for use (both old and new) before leaving the shop. No time and money lost grinding rough and newly dressed Picks. All come to hand ready for use.

ALSO MANUFACTURERS OF
SHAFTING, PULLEYS, HANGERS, COUPLING
AND MACHINE JOBBING.

JOHN C. HIGGINS & SON,
Manufacturers and Dressers of
MILL PICKS.
183 KINZIE ST., CHICAGO.



GOLD MEDAL—SPECIAL, 1ST ORDER
OF MERIT.



Send for Circular and Price List.

THE BEST AND CHEAPEST COB CRUSHER IN THE WORLD.

Steel Being Used in its Construction.

PRICE, 30.00.
CAPACITY 75 BUSH. PER HOUR.

Thousands of these Crushers are now in use, and giving entire satisfaction.

Please Send for Circulars.

R. C. McCULLEY, LANCASTER, PENN.

HOOVER'S IMPROVED DIAMOND MILLSTONE DRESSING MACHINE.

ADAPTED TO ALL KINDS OF DRESSING.

No 1, to face and crack \$25.00
No 2, to face, crack, dress furrows, and will dress any size stone. 45.00
No 3, to face, crack and dress furrows. 40.00

Will do as good work, and is more easily adjusted than any other machine. Sent on 30 days' trial. Address for circulars, containing full information.

C. S. HOOVER, Patentee and Manufacturer, 409 East King St., LANCASTER, PENN.



AUTOMATIC SCALES & REGISTERS

The only perfect scales and registers in the world. Particularly adapted for millers' requirements.

SENT ON TRIAL.

Beware of Infringements

We guarantee the accurate performance of the scales and registers in every case. Send for circular, and mention THE MILLING WORLD.

THE M. F. KOCH MFG. CO.

63 Prince Street, New York.

KEYSTONE CENTRIFUGAL REEL

—PATENTED MAY 6th, 1884.—

Drag Brush Feed, Tightest Heads, Best Results. Cheapest and Best on the Market. Adapted to all Kinds of Milling. The New Drag Feed Thoroughly Protects the Mill. Sent on Trial to any Responsible Miller.

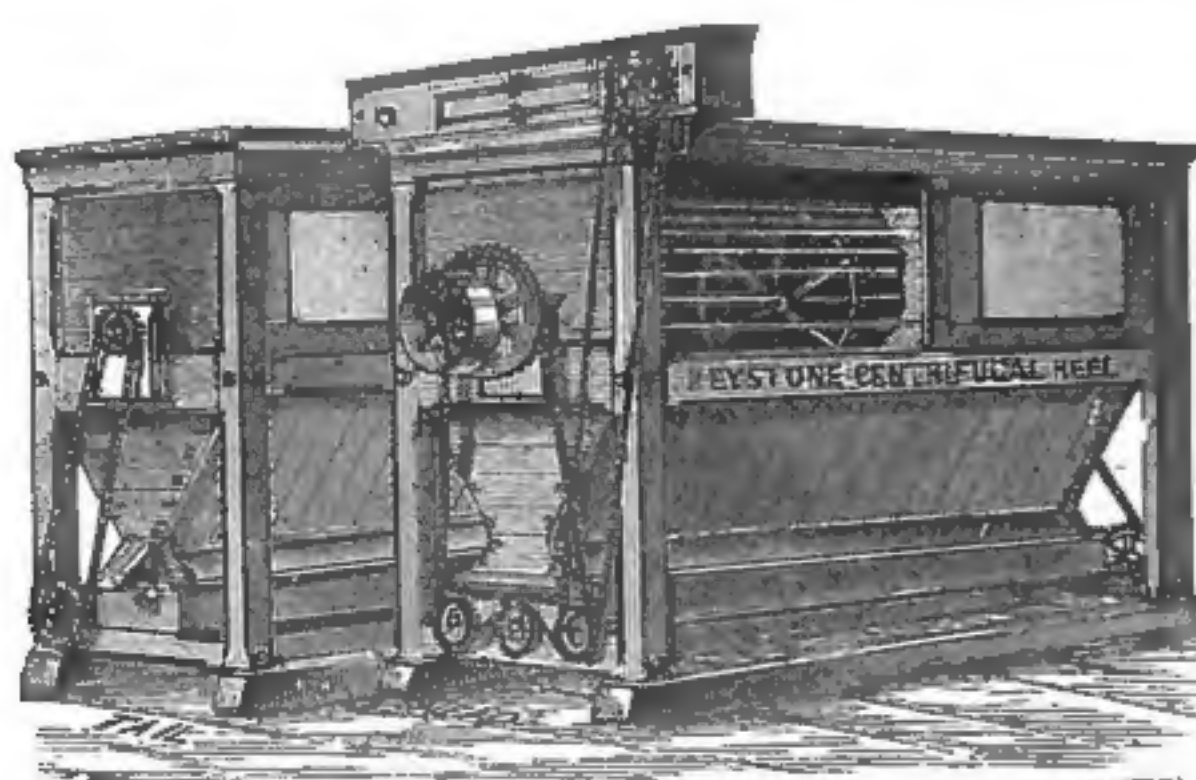
ROLLER MILLS, SCALPING REELS, PULLEYS, SHAFTING AND ALL KINDS OF MILL IRONS.

Full Stock of Dufour and Dutch Anchor Bolting Cloth.

BEST QUALITY FRENCH BURR MILLSTONES, FOR MIDDINGS, WHEAT AND FEED.

Leather, Rubber and Cotton Belting, Smut Machines, Purifiers and everything belonging to a Flour Mill furnished at Lowest Market Prices. For Circulars, Prices and Full Particulars, address the Manufacturer,

C. K. BULLOCK, 1357, 1359, 1361 RIDGE AVE., PHILADELPHIA, PENN.



The Rounds Sectional Roller Mill

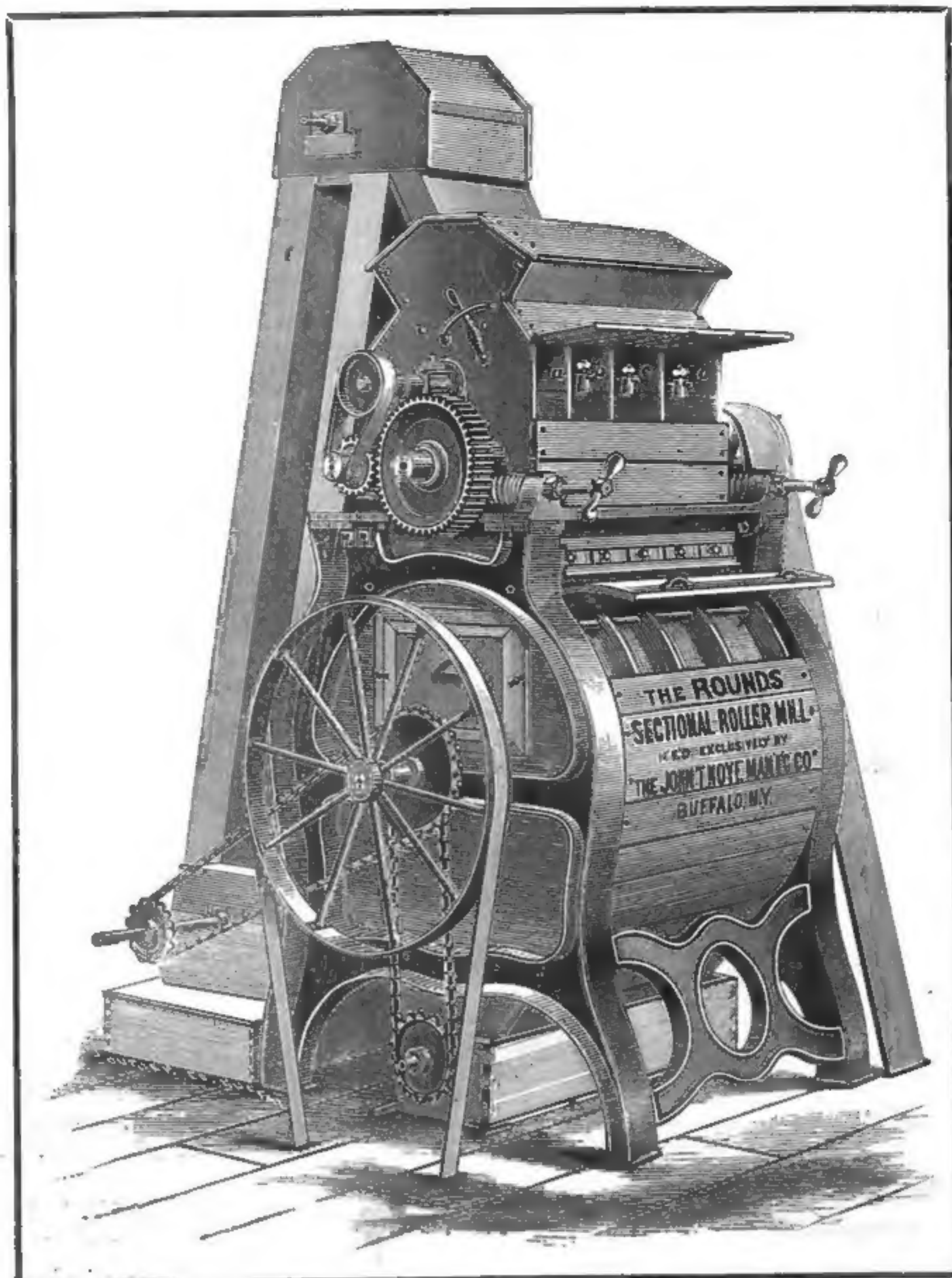
*Is Especially Adapted for
Custom and Exchange
Millers.*

Can be Adopted with less outlay
of money, and will produce more
satisfactory results than any other
roller mill manufactured.

STEVENS
CORRUGATIONS.

This mill is in successful
operation in hundreds of
mills, and not one has
failed to come up to
the capacity and
work guaranteed.

CORRESPONDENCE SOLICITED.



*Unquestionably the Roller
Mill for Merchant
Millers.*

Perfect in its operation, and it
requires less power than any
similar roller mill in the world.

STEVENS
CORRUGATIONS.

Enables the miller to adopt
the roller mill system with
less expense than by
any other method.

Send For Illustrated Catalogue
and PRICE LIST.

THE J. T. NOYE MANUFACTURING CO., BUFFALO, N. Y., U. S. A.



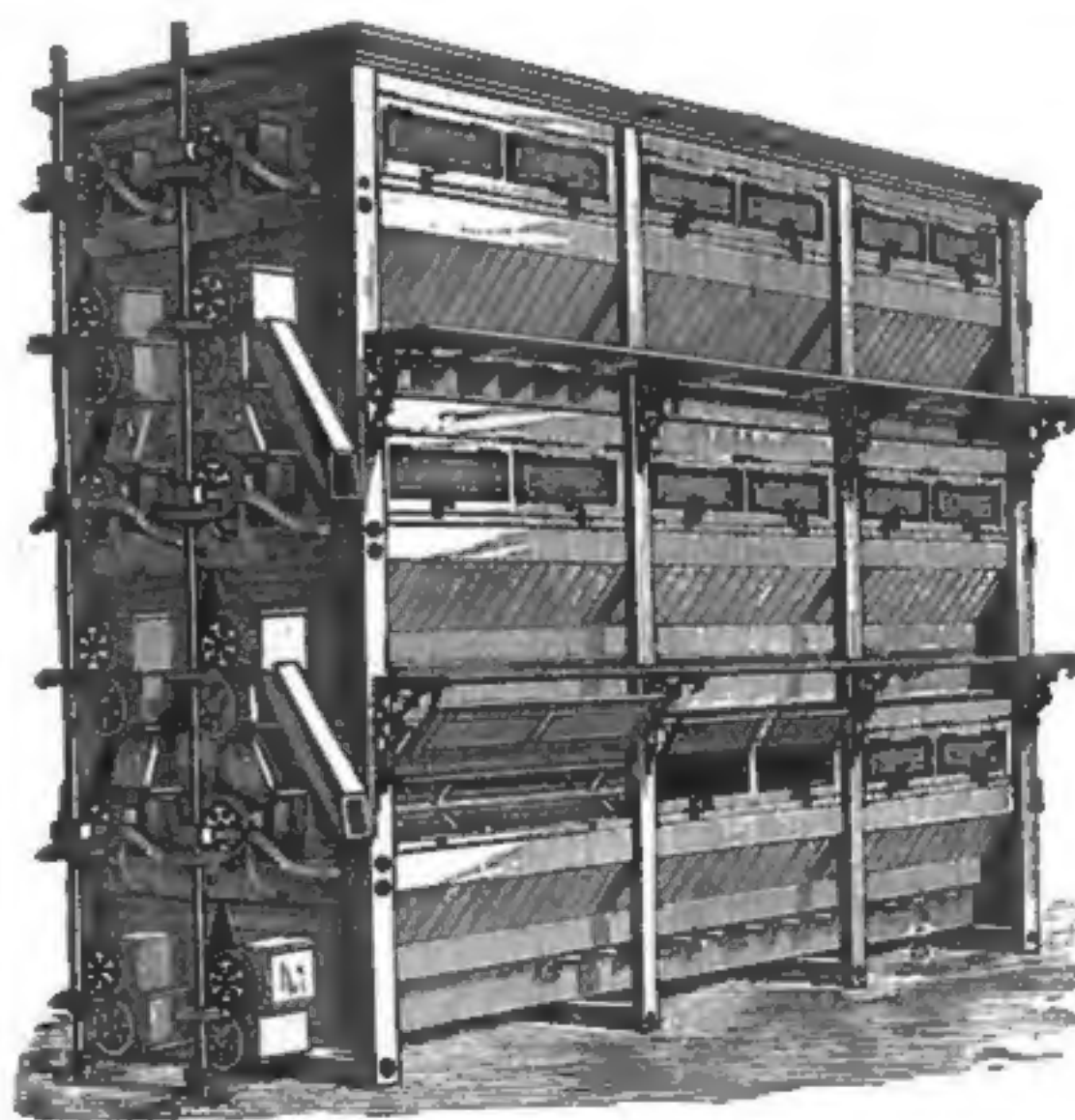
THE CELEBRATED
**SCHINDLER-ESCHER
LION BRAND
Bolting Cloth**

Is Imported Direct from Zurich, Switzerland, and
Sold Wholesale or Retail by the

GREAT WESTERN MANUFACT'NG CO.

LEAVENWORTH, KANSAS.

Send for Price List, Samples, and Book of Diagrams.



**RICHMOND CITY
MILL WORKS,**

MANUFACTURERS OF AND DEALERS IN

Impr'ed Milling

MACHINERY

AND

ALL KINDS MILL SUPPLIES

Richmond, Indiana.

SEND FOR CATALOGUE.

THE EXCELSIOR ANCHOR BOLTING CLOTH TO THE FRONT.

RECOGNIZED AS THE QUEEN OF ALL BOLT
CLOTHS BY ONE-THIRD OF THE MILL OWN-
ERS, MILLERS AND BUILDERS IN THE UNITED
STATES, AND THEIR VERDICT IS "GIVE US THE
EXCELSIOR AND NO OTHER!" SEND FOR DIS-
COUNTS AND PRICES FOR MAKING UP, WHICH
ARE GREATLY REDUCED.



RECOGNIZED AS THE QUEEN OF ALL BOLT
CLOTHS BY ONE-THIRD OF THE MILL OWN-
ERS, MILLERS AND BUILDERS IN THE UNITED
STATES, AND THEIR VERDICT IS "GIVE US THE
EXCELSIOR AND NO OTHER!" SEND FOR DIS-
COUNTS AND PRICES FOR MAKING UP, WHICH
ARE GREATLY REDUCED.

HUNTLEY & HAMMOND, SOLE IMPORTERS, SILVER CREEK, N. Y.

Successors in the Bolting Cloth Trade to Huntley, Holcomb & Heine, Holcomb & Heine and Aug. Heine.